EVALUATION OF CERTIFICATE OF NEED IN MICHIGAN

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Certificate of Need for Acute Care Services: Should States End It or Mend It?

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Certificate of Need for Acute Care Services: Should States End It or Mend It?

Abstract

This study investigates the effect of lifting certificate of need programs on health care expenditures, bed capacity, hospital output, technology diffusion, for-profit bed share, and HMO penetration. For states with CON, we also examine the effect of program stringency. Overall, we conclude states choosing to end CON will not generally experience a surge in health care spending. However, stringent CON programs reduced some types of spending, such as on hospitals and by Medicare and diffusion of some technologies. Thus, those states choosing not to end might consider mending, but in the direction of greater CON stringency.

Certificate of Need for Acute Care Services: Should States End It or Mend It?

Introduction

After a respite in health care cost inflation during much of the 1990s, spending on personal health care services has begun to accelerate once again. At the same time, there has been a backlash against managed care, leading to a return to other older health care cost containment strategies, such as patient cost-sharing and various regulatory approaches (Jackson 2002). The granddaddy of various regulatory cost containment approaches is entry regulation of which the most prominent form is certificate of need (CON). Originating first in New York in the 1960s, followed soon thereafter by Connecticut and Rhode Island, and diffusing to more states in the early 1970s (Table 1), CON enactment was made a condition for receipt of a sizable number of federal grant programs under the federal National Health Planning and Development Act of 1974, providing a strong financial inducement that all but compelled states to have a CON program.

With the failure of Congress to reauthorize the law in 1986, states became free to drop CON; since then, 14 states have dropped CON entirely while another six states have only retained programs for long-term care.[1] Also, free of federal strictures, states retaining CON for a broader range of services could modify their programs. Many states decided to reduce the stringency of their programs by for example, increasing dollar

[1] Only five of these states actually dropped acute care CON (Arkansas, Nebraska, Ohio, Oklahoma, Wisconsin), while the sixth (Louisiana) never had an acute care CON program. The 14 states without any CON are: Arizona, California, Colorado, Idaho, Indiana, Kansas, Minnesota, North Dakota, New Mexico, Pennsylvania, Texas, Utah, and Wyoming.

thresholds below which capital expenditures were no longer subject to CON review and exempting particular services for review (Fig. 1). Although stringency of CON has generally declined over time as measured by dollar thresholds or number of services under review, in some respects, CON stringency has *increased* since the mid-1970s in states that have retained it. In particular, recognizing that controlling hospitals may lead to cost increases in other part of the health care sector (Finkler 1987), there has been a trend toward extending coverage to ambulatory care units, such as free standing ambulatory surgery centers (Finkler 1985). Such units were far less common when CON was first enacted and may have grown in part due to lack of coverage of such facilities.

The changed federal role in health planning as well as developments in individual states during from the mid-1980s through the late 1990s reflected a more widespread view that reliance on market forces could achieve health care cost containment. Although this view remains widespread, there is growing sentiment to reexamine the effectiveness of regulatory approaches to cost containment. Thus, in the early 21st century, states face a decision whether to "mend" or "end" CON. Mending may not have meant decreasing the scope of CON. Advocates of ending CON faced concerns of CON proponents that ending CON would result in a spurt in health care spending.

Issues related to the effectiveness of CON and CON-style regulation have been among the more contentious in the academic community, particularly among scholars with interests in hospital care. In one camp, have been those researchers who have reported that CON has been ineffective in cost containment and of dubious value in enhancing access (Sloan 1981; Sloan 1983; Sloan and Steinwald 1980a and b; Conover and Sloan 1998). Even though there may be some benefit in increasing volume and hence outcomes by restricting entry of suppliers of certain services regulated by CON by,

such as provision of coronary bypass surgery (Luft 1990), imposing entry restrictions is an impediment to competition, may increase travel time to facilities in emergency situations, and may for these reasons decrease social welfare.

Opposed to this view are many in both the practitioner community as well as some researchers. One view is that CON programs may be ineffective in cost containment as many studies have concluded, but there is considerable heterogeneity among programs. In a comprehensive review of the literature, Salkever (2000) described two potential sources of heterogeneity: (1) interactions among multiple regulatory programs in the same jurisdiction and (2) differences in political climates among states that may affect the ways in which regulatory programs are applied (p. 1531). On the first point, however, in a climate that emphasized reliance on competitive forces, almost all states dropped the regulatory program with the most promise for cost containment, state rate-setting of hospitals.[2] On the second, CON programs have been dropped in states in which the political climate is less amenable to regulation. To date, only one state in the Northeast, Pennsylvania, has dropped CON. The three states that retain stringent versions of CON, Connecticut, Maryland, New Jersey, have long histories of activist state regulation of health care and of other sectors as well.

The large literature on the relationship of hospital volume to health outcomes provides some empirical support for continuing CON, albeit in a highly focused form.[3] There is a small literature, but one with mixed results, on CON's direct effects on patient outcomes. There is a widely disputed study showing the adverse effects of stringent CON on Medicare hospital mortality rates (Shortell and Hughes 1988), along with claims that

[2] Salkever (2000) reviewed this evidence. Schneiter et al. (2002) documented the demise of rate-setting.
[3] Halm et al., (2000) provide the most recent comprehensive review of this literature, while Birkmeyer et al., 2002 provides recent strong evidence of this relationship for 14 surgical procedures.

CON may have indirectly reduced quality of kidney dialysis in Connecticut by limiting access.[4] More recently, Vaughan-Sarrazin et al. (2002) reported much higher risk-adjusted mortality for open-heart patients in states without CON, but a case study of lifting CON in Pennsylvania (Robinson et. 2001) found no adverse effects on CABG outcomes from CON removal.

Much previous research on CON was based on data from the pre-1990s. Thus, these studies could not assess the effects of lifting CON. To our knowledge, aside from descriptive accounts of single states lifting CON, which implied that lifting CON led to a surge in health care spending,[5] and a study that sought to explain the determinants of state decisions to drop CON (Phillips 1995), the only national empirical study to assess effects of lifting CON is Conover and Sloan (1998). In that study, lifting CON had no effect on: real spending on acute care services per capita population; hospital beds per capita; hospital expense per adjusted admission or patient day; hospital profits; or on diffusion of open heart surgery units, organ transplant units, or ambulatory surgery units, either hospital or non-hospital based; or on the share of persons in the state enrolled in health maintenance organizations (HMOs). However, lifting CON did increase real expenditures on Medicare Part B per beneficiary and the share of hospital beds in the state under for-profit ownership. That study accounted for heterogeneity of CON programs, using a measure of program stringency but did not report findings because no results on CON were statistically significant at conventional levels.

The present study extends the Conover-Sloan analysis in three important respects. First, adding five more years of data supports a much more detailed analysis of effects of

[4] Brown et al. (1992) cited in State of Washington, JLARC (1999).
[5] Simpson (1986) and Lewin-ICF (1992).

lifting CON on many of the same outcome measures. Second, this study uses a method for assessing effects of CON, prior to, during, and after CON was lifted. Third, this study, which uses more recent data does find that some statistically significant effects of CON program stringency. This study's overall conclusion is that states choosing to end CON will not generally experience a surge in health care spending. However, those states choosing not to end might consider mending, but in the direction of greater CON stringency.

Analytical Approach

We assessed several dimensions of impacts of removing CON using several alternative dependent variables. The observational period varied somewhat depending on data available (Table 2). The observational period was as long as 1980-2000.

Health Care Spending. The main study question was whether or not removal of CON resulted in increased spending on total and for acute care health care services. The first group of dependent variables referred to expenditures on total personal care health services per state capita population per year, 1980-98. We also analyzed total acute care expenditures per capita population and components of such expenditures, hospital and physician expenditures. The measure of acute care spending excluded expenditures for long-term care services, i.e., nursing home and home health. The analysis of spending on hospital and physician services is mainly interesting for interpreting patterns in acute care spending. We also assessed total Medicare expenditures per beneficiary per state per year.

We obtained these data on state spending by year from the U.S. Center for Medicare and Medicaid Services (CMS). All monetarily expressed variables in this study were inflated to 1998 dollars using the all-item Consumer Price Index. Unless otherwise

noted, the dependent variables and all continuous (nonbinary) explanatory variables were expressed in natural logarithms.

Bed Capacity and Hospital Output. The second set of dependent related specifically to the hospital sector: the number of (1) beds per 1,000 persons resident in the state and year (a measure of capacity); (2) adjusted admissions/1,000 (adjusted to convert outpatient visits into inpatient equivalents) and (3) adjusted patient days in community hospitals/1,000 (both measures of output); expense per (4) adjusted admission and (5) adjusted patient day (measures of hospital efficiency and service intensity); and (6) hospital profitability, the ratio of total revenue to total expense. If CON is effective in hospital cost containment, we would expect that CON would reduce hospital bed capacity, hospital output, and reduce hospital expense per unit of output. An effective CON program would create barriers to entry, which may in turn have increased hospital profitability. Lifting CON would potentially have the opposite effects.

Technology Diffusion. Third, we included dependent variables for technology diffusion in hospitals, all expressed in terms of the number of units in community hospitals per million state population in the year: (1) trauma; (2) cardiac catheterization laboratories; (3) open heart surgery; (4) organ transplant; (5) CT scanner; and (6) MRI. For four of these technologies, there were no facilities at community hospitals in the state in at least some of the years. For these technologies, we specified and estimated an equation with a binary dependent variable, which took the value one if the state had at least one unit in that year and was zero otherwise. Then we selected state-year observations with at least one unit for regressions with the natural log of units per million state population in the year as the dependent variable.

Since it seems implausible that CON would result in no units being provided in the state, the results presented below are for those states with at least one unit in the state and year. Again, an effective CON program would reduce proliferation of such technologies and, conversely, lifting such a program might result in service proliferation, as the proponents of CON programs have argued.

Industrial Organization. Finally, we assessed dependent variables describing the industrial organization of the hospital and health sectors in the state and year: (1) for-profit hospital beds as a fraction of total community hospital beds; and (2) fraction of persons in the state and year enrolled in health maintenance organizations. Although empirical results on the relationship of CON to for-profit entry have been mixed,[6] CON may have responded to public and private nonprofit hospital lobbying favoring entry restrictions of for-profit hospitals. HMOs derive market power vis-à-vis health care providers by being able to steer enrollees away from providers with which it would have unfavorable contracts from their vantage point. To the extent that CON programs restrict entry of health care providers, HMOs may lose this bargaining chip, and this is turn may deter HMO entry. A case for dropping CON has been that (1) HMO presence in the state is sufficient to serve as a cost containing force and (2) keeping CON may reduce HMO entry into the state.

Data for all dependent variables in the second through fourth groups came from the annual issues of the American Hospital Association's *Hospital Statistics*.

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[6] Conover and Sloan (1998) reported that both stringent CON and lifting CON were associated with higher for-profit bed shares; McCarthy and Kass (1983) found that stringent CON was associated with lower for-profit hospital shares while Policy Analysis-Urban Systems (1980) found for-profit hospital growth was higher under CON; but most other evidence suggests no impact: Sloan and Steinwald (1980a); Wedig et al; (1987); and Conover and Sloan (1998)

Lifting Certificate of Need. The goal of our empirical research was to identify the effects of a particular type of statutory change enacted by certain states on various dimensions of health care delivery. To identify such effects, one must control for other determinants of outcomes in the states enacting the legal change that are correlated with, but not attributable, to the statutory change.

To measure the effects of removing CON, we employed a difference-in-difference approach. In this approach, one infers the effect of a public policy intervention, in this context, a state's decision to drop CON, by comparing changes in the dependent variables after versus before CON was lifted in states that lifted CON with changes in the same dependent variables in states that did not life CON during the same period.

The simplest approach would be to compare trends in (say) real total expenditures on personal health services per capita population ("cost") in two states, one that dropped CON and one that kept CON.[7] Then the difference-in-difference (DD) would be the change in cost after versus before CON was lifted in the state that lifted CON minus the change in cost between the same years for the comparison state that did not lift CON.

Although such a comparison has the virtue of simplicity, it has several shortcomings. First, factors other than removal of CON may account of differences in the cost trends in the two states. Thus, it is important to eliminate changes in these other factors as determinants of differences in the expenditure trends, which the simple difference in difference calculation does not do. Second, since it would be impossible to account for all potential causes of the changes in the two states, no one state is a perfect control; however, including at least one control is far better than including no controls.

[7] For other applications of the method, see e.g., Gruber (1994) and Picone et al. (2002). Gruber employed an even more complex methodology, differences-in-differences-in-differences (DDD). In his application of DDD, Gruber included binaries for year, state, and state-year interactions. Picone et al. used a DD approach more nearly similar to the approach used in this article.

Third, removal of CON may be endogenous to trends in expenditures in the state (and the other dependent variables we included). For example, a state with a high managed care share may be more likely to drop CON, under the presumption that competitive forces will keep expenditures in check. What makes the situation even more complex is that the fraction of persons enrolled in managed care organizations (MCOs) may be endogenous to CON. Perhaps, as already noted, MCOs are discouraged from entering states that have CON.

Fourth, there may be heterogeneity in the effectiveness of state CON programs as instruments of cost containment. A comparison from a state that dropped a badly-run CON program with a state that has an effective program may be highly misleading. Fifth, if the comparison is over a short time period, the effects of dropping CON may not yet be evident.

In the method we used, we addressed most of these pitfalls. We dealt with the effect of the other determinants of variation in the dependent variables in three ways. First, we included several explanatory variables, including managed care penetration and other regulatory programs.

Second, we included binary variables for each year, to capture any national trends in the dependent variables. The year binaries were included to measure national trends not captured by the explanatory variables we included. Since states lifted CON more in some years than in others, without including the year binaries, we may have attributed effects to lifting CON, which truly were due to such time-related influences as enactment in 1997 of the federal Balanced Budget Act.

Third, we included state "fixed effects," binary variables for each state, to control for state-specific determinants of the dependent variables that may be correlated with the propensity to lift CON, such as the state's political and regulatory political climate. In the simple example above, differencing within the state eliminated such time invariant fixed effects not accounted for by the other explanatory variables in the equation. Including state binaries accomplishes the same objective as such differencing, but with added precision given the inclusion of other explanatory variables for the state and year. With year and state fixed effects included, the only variation left to be explained is variation within states and within years.

Fourth, we included binary variables for the year the state lifted CON, each year before CON was lifted --1, 2, and 3 years before the year CON was lifted, the year CON was lifted, and each year after CON was lifted -- 1,2, 3 and 4+ years after CON was lifted. Since our focus was on acute care CON, if a state dropped CON for all services other than long-term care, we considered the program to have been lifted. The omitted reference group was CON lifted 4 or more years ago. These observations played the crucial role in the analysis of the base period from which impacts of lifting CON were calculated. Thus, the period 4 or more years prior to CON lifted was the comparison group. Parameter estimates (and associated standard errors) on 1,2, and 3 years before CON was lifted and the year CON was lifted showed changes or trends relative to the base period 4 or more years prior to lifting CON. Parameter estimates for 1, 2, 3, and 4+ years post CON lifted revealed the effects of lifting CON.

The CON lifted variables for states that did not lift CON during the observational period were set equal to zero. The category for 4 or more years prior to CON lifted category was the omitted reference group for the computing the effect of lifting CON.

This variable was set equal to zero for both states for years 4 or more years before CON was lifted in the state and for states that did not lift CON.

Our specification allowed us to distinguish between states that lifted CON 4 or more years before the year and states that never lifted CON. We accounted for time invariant differences between states that lifted CON and those did not by including binary variables for each state ("state fixed effects").

The rationale for our specification is somewhat complex but important for interpreting the results. We needed to control for state-by-year interactions that could have been correlated with the states' decisions to lift CON. Including the state and year fixed effects and the other explanatory variables would not have eliminated the possibility that we might have attributed an effect to lifting CON. To deal with this possibility, we might have included state-year interactions in addition to state and year effects.[8] But we were precluded from doing this. We would be unable to separate the state-year interactions from the lifting CON variables. Also, we had insufficient degrees of freedom.

With our approach, one must not only gauge the statistical significance of the parameter estimates, but also examine the patterns in the estimates. Suppose that some unspecified state-specific factor not accounted for by the explanatory variables was causing cost in the state to decline. Then one would observe a negative trend in parameter estimates on the pre-CON lifted variables, i.e., they would became increasingly negative as the CON lifting year approached. If the trend in parameter estimates on the post-CON lifted variables continued to become more negative as time from the CON lifted year elapsed, it would be inappropriate to interpret the post-CON

[8] This is the DDD approach.

lifted coefficients as evidence that lifting CON reduced cost. Conversely, if there were no trend in cost before CON was lifted or cost was actually rising and cost declined after CON was lifted, this would be an appropriate inference. A particularly ominous indicator suggesting that lifting CON had adverse effects on cost containment would be a pattern of negative and statistically significant coefficients for the pre-CON period followed by increasing positive coefficients after CON was lifted.

We did not explicitly account for endogeneity of the state's decision to remove CON directly. We did account for possible endogeneity indirectly by including variables to account for unobserved heterogeneity in the error term that may be correlated with CON removal. As a practical matter, our statistical approach should have largely mitigated endogeneity of CON removal. Any correlation between time-invariant state-specific factors and CON removal should have been accounted for by inclusion of the state binary variables. Time-varying influences, such as secular decline in spending before CON removal, should have been accounted for by the time varying pre-CON lifted variables.[9]

[9] A direct approach was precluded because it is very difficult to find an instrumental variable highly correlated with CON lifted that is not also correlated with the dependent variables.[9] The HMO market share, most importantly belongs in equations for CON removal and in the equations for the dependent variables specified above. Also, knowing the time path of changes in the dependent variables post CON removal is important. Treating so many variables as endogenous (all of the CON lifted variables) would be impractical. See Nelson and Startz (1990), Bound et al. (1995), and Staiger and Stock (1997) for a discussion of the properties of a good instrumental variable (IV) and the consequences of having a poor IV. Studies of CON treating CON adoption as endogeneous include Antel et al. (1995) who found that CON had no impact on health care spending. Lanning et al. (1982) found that CON was adopted early in states with high spending levels prior to adoption; after controlling for this, they concluded that CON was associated with a significant *increase* in hospital and other health spending. Cohn and Dranove (1986) developed a model of the probability that a state had a hospital rate-setting law. They reported, among other findings that the general political climate (as measured by the average Americans for Democratic Action (ADA) rating for members of the U.S. Congress, was strongly predictive of adoption of rate-setting. This effect, especially if time-invariant for particular states, however, has probably been captured by our state fixed effect variables.

Heterogeneity of CON Programs. CON programs are heterogeneous with respect to readily observable characteristics, such as thresholds for coverage and services covered, but also with respect to characteristics not so readily observed, such as rigor and toughness of the reviews, red tape imposed on applicants, and responsiveness to local political considerations. To the extent that the legislative process has weeded out poorly performing programs, just gauging average responses to lifting CON may understate the risks of lifting CON for approximately three fifths of states that have retained CON to date.

Ideally, we would have been able to have accounted for heterogeneity in CON programs that were lifted, but an insufficient number of states removed CON to permit such stratification. Also, states retaining CON may want to "mend" it rather than "end" it. For this reason, gaining an understanding of effects of differences in CON programs is of interest in its own right.

Thus, rather than focus on lifting CON, we examined effects of observable characteristics in CON programs in place on the dependent variables described above. In this specification, states and years without a CON program constituted the omitted reference group.

We accounted for some dimensions of heterogeneity in CON programs with a CON stringency measure originally developed by Lewin-ICF (1992). This measure took account of dollar thresholds used to determine whether a project was subject to CON review and the scope of specific services subject to CON review. This produced a continuous numerical score that Lewin-ICF used to categorize states into three mutually exclusive categories: 1=limited; 2=moderate; 3=stringent. We updated these measures

through 2001 and used measures through 2000 in our regression analysis. Many states reduced levels of stringency before dropping CON (Fig. 1).

We defined three binary variables for years in which the state had a (1) limited, (2) moderate, and (3) a stringent program. We did not attempt to model the lag structure as with the CON lifted analysis. The number of categories did not permit this.

Ideally, we would have also described CON programs in terms of how well the program was administered (e.g., thoroughness and speed of reviews), but such data were not available and could not be collected for the historical period. Although we cannot know for sure, it seems plausible that omitted characteristics, such as rigor, were correlated with the characteristics we could readily observe. Thus, if we found that stringent CON as we defined it was successful in cost containment, it would be inappropriate to infer that broadening program scope per se would achieve the desired result. Rather, this would cause us to be more cautious in advising states with CON that dropping their CON programs would have no adverse effects on cost containment.

Other Regulatory Programs. For part of the 1970s and 1980s, states had the option of adopting section 1122 programs. Unlike CON, section 1122 allowed hospitals to make unapproved investments in plant, equipment, and services, but unless approved, there was no Medicare or Medicaid reimbursement for capital expenditures associated with the projects. The section 1122 variable was measured as the fraction of hospital revenues from Medicare and Medicaid by state and years, but only for the years that this program was in effect in the state. Section 1122 was eliminated in all states by late 1987.

We included an explanatory variable for Medicare Prospective Payment of hospitals. It was measured as the fraction of hospital revenue covered by PPS by state and year. The variable accounts for the years the program was phased in (1984-87) and the

fraction of hospital revenue by state-year. We also measured the fraction of hospital revenue covered by mandatory rate-setting programs. We distinguished between young rate-setting programs—first three years of implementation and mature programs—the others.

Other Explanatory Variables. We included explanatory variables for the fraction of hospital revenue that came from Medicare and Medicaid programs. Without including these variables, the section 1122 and the rate-setting variables may have represented payer mix rather than regulatory effects. Two other variables represented the fraction of the state's population who were covered by Medicare and Medicare during the year. We also included a variable for the fraction of persons without any sort of health insurance coverage. This variable was derived from unpublished data from the Current Population Surveys (CPS).

Unfortunately, the CPS definition of uninsured changed over time. We therefore estimated a regression for the probability of being uninsured, which took account of the years specific definitions were in effect. Predicted values from this regression were used for the uninsured explanatory variable. We included the HMO share, calculated by dividing HMO enrollment by resident population on July 1 of each year. This variable measured the influence of the competitive forces association with managed care on expenditures, service diffusion, and on industrial organization. We controlled for time-varying area characteristics likely to influence the dependent variables. These variables were: income per capital population (Bureau of Economic Analysis estimates); the ratio of general practitioners to all physicians (American Medical Association); the fraction of population over age 65 (Bureau of the Census); population density (Bureau of the Census), and the weekly wage paid to service workers (Bureau of Labor Statistics).

To permit a distinction between short- and long-run influences of explanatory variables, we included lagged dependent variables. The coefficient on the dependent variable is interpretable as one minus the fraction of the gap between the actual the equilibrium value of the dependent variable that is closed in a year (λ). To derive the long-run effect of a change in an explanatory variable, the coefficient on the explanatory variable is divided by fraction of the gap closed each year, λ. In discussion of results, we will emphasize the short-run effects. These are most germane to state policymakers and also, imposing a common lag structure on all explanatory variables, as we have done, is a very restrictive assumption. For analysis of lifting CON, our CON specification is potentially more informative, as it shows year-by-year effects (accordingly, it would only be meaningful to calculate long-run effects from the post-lift year 4+ variable).

Functional Form. Unless otherwise indicated, all continuous variables were expressed in natural logarithm form. When the dependent variable and the independent variable remain both in log form, the coefficient represents an elasticity. Binary variables and those with values between zero and one (fractions) were expressed in linear form. When the dependent variable is in log form and the explanatory variable is linear, the logarithm of the coefficient gives a percentage effect. When both dependent variables are linear (the case with the for-profit share and the HMO equations), the coefficient on the explanatory is interpreted as the effect of a unit change on the dependent variable. For example if the coefficient were 0.25, this means that an increase of 0.01 in the explanatory variable would result in an increase of 0.0025 in the dependent variable on average.

In the technology diffusion analysis, several dependent variables had zero values for certain states and years, indicating that there were no facilities of a given type in these states. In these cases, we estimated a two-part model. First, we estimated a linear

probability equation for whether there were any facilities of the type in the state or not (dropping the lagged dependent variable). Then, we estimated equations for the technology, including only these state-year observations for there was at least one facility of the type in the state and year.

Means and standard deviations of the dependent and explanatory variables are presented in Table 2.

Results with the CON Lift Specification

Health Care Spending. For none of the dependent variables did we find that removing CON had an adverse effect on cost containment (Table 3). For real total health care spending per capita state population, real spending tended to be lower than it otherwise would have been in the years before CON was lifted. One of the pre-lift variables was statistically significant at conventional levels (p=0.014,Prelift 2), but even in this case, the parameter estimate implies that spending two years before CON was lifted was 0.7 percent lower than spending four or more years before lifting CON.[10] Two years after CON was lifted, spending was about the same as two years before CON was lifted; 4+ years after CON was lifted, spending was 0.1 percent higher than four years before CON was lifted, and this result was very insignificant (p=0.72).[11] Not surprisingly, since it accounts for most of total spending, the pattern for real acute health spending per capita

[10] The effect of a binary variable on a dependent variable in natural log form is calculated by taking raising the coefficient by e^c, where c stands for coefficient. For small values of c, the transformation makes very little difference.

[11] Not show, but pertinent to the question of endogeneity, our state-level fixed effect coefficients showed that controlling for all the factors we have shown, baseline per capita health spending was significantly higher in the following states that dropped CON: Indiana (4.5%,p=.001), Ohio (5.9%,p=.006), and Pennsylvania (5.4%,p=.019). Spending was significantly lower in Arizona (-7.7%, p=.000), Arkansas (-3.1%, p=.016), Colorado (-6.7%, p=.000), Idaho (-10.1%, p=.001), Kansas (-6.2%, p=.000), Nebraska (-7.6%, p=.000), New Mexico (-11.9%, p=.000), North Dakota (-7.3%, p=.009), Oklahoma (-4.9%, p=.001), South Dakota (-9.5%, p=.002), Texas (-4.0%, p=.018), Utah (-5.7%, p=.012) and Wyoming (-16.5%, p=.000).

was almost identical. The effect at 4+ years post CON lifting was even lower versus the base period (0.05 percent, p=0.99).

Comparing post four years after CON was lifted with the base period, real hospital spending per capita fell slightly (by 0.3 percent); this result was not statistically significant at conventional levels (p=0.46). Again a decrease in such spending prior to lifting CON was evident. If we had used two years before lifting CON rather than four plus years as the base period, we would calculate that real hospital spending increased by a small amount, 0.7 percent.[12]

Real spending on physicians' services also did not increase four or more years after CON was lifted. Here the effect was a 0.6 percent increase (p=0.40). We found no effect of lifting CON on real spending per Medicare beneficiary.

A number of other variables had statistically significant impacts on spending. Results on these variables are not shown in later tables to conserve space. For total, acute, and hospital spending, the Medicare Prospective Payment System had a negative impact on spending. The cost containment effects were very substantial in comparison to those we documented for lifting CON. For acute care spending, PPS decreased per capita spending by 11 percent on average (p=0.001) and spending on hospital services by 28 percent (p<0.001). A 10 percent increase in the HMO market share decreased such spending by 0.4 percent on average (p=0.006). Neither PPS nor the HMO market share affected per capita spending on physicians' services High real per capita income led to more spending with associated elasticities ranging from 0.12 for hospital services to 0.29 (p<0.001) for physician services.

[12] The calculation is:$e^{(-0.0031-(-0.0102))} = 1.0071$.

We are unable to explain the positive coefficients on the variable for the share of the state population with no health insurance. But, fortunately, our results on lifting CON were insensitive to whether or not this explanatory variable was included in the analysis. The coefficients on the lagged dependent variables varied from 0.77 for physician spending to 0.85 for total spending. These results imply a rapid change in spending to changes in the explanatory variables, and a large difference between short and long-run responses to changes in explanatory variables. For example, with a coefficient of 0.85, when the coefficient implies that a unit change in the variable causes a 10 percent change in spending in the short run, the long run effect is a 67 percent change (.1/.15).

Hospital Bed Supply, Admissions, Input Intensity, and Profits. Lifting CON resulted in a decrease in the number of beds in community hospitals per capita population (Table 4). The coefficient on Postlift4 implies a 1.1 percent decline in the bed-to-population ratio (p=0.036). However, this result is sensitive to the base period employed. Bed supply declined in states lifting CON prior to this statutory change (in particular two years earlier) and during the year in which CON was lifted. If we had used two years before CON was lifted as the basis for comparison (omitted reference group), we would have concluded that removing CON had no effect on bed supply. Rather, CON was lifted in states in which excess bed capacity apparently was being eliminated by market forces.

Lifting CON had no effect on the number of admissions to community hospitals per capita population and on either measure of hospital input intensity. However, lifting CON increased hospital profitability four and more years after CON was lifted (p=0.032). In this case, there was neither a trend in the pre-CON lift period, in the year CON was lifted, or in the post CON period until four and more years after CON was lifted. We

included year fixed effects. Thus, this result is not confounded by national trends in profitability.

Diffusion of Technology in the Hospital Sector. Overall, lifting CON had no effect on diffusion of the types of technologies we studied (Table 5). For trauma units, the parameter estimate on Postlift4 implies a 5.7 percent increase four years and more after CON was lifted compared to the base period (p=0.68). But for two reasons, we do not attach much importance to these result: the statistical insignificance of the parameter estimate and the fact that some of the parameter estimates for the pre-CON lift period imply a similar increase relative to the base period. The parameter estimate for Postlift4 in the equation for diffusion of organ transplantation units implies a decrease in such units four or more years after CON was lifted, but again, some of the parameter estimates for the pre-CON lifted period imply changes of equivalent or greater magnitude. For MRI, there is some indication that lifting CON reduced the number of MRI units. The parameter estimate for post-lift1 was statistically significant at conventional levels (p=0.041); however, the post-CON parameter estimates became increasingly less negative, with none being statistically significant (i.e., whatever benefits may have been associated with lifting CON appeared to be short-lived).

For cardiac catherization laboratories, the parameter estimates on Postlift1 (p=.031), Postlift2 (p=.093) and Postlift3 (p=.052) all are negative, but as with MRI, this effect, while still negative, no longer is significant in Postlift4 (p=.249). No effect of lifting CON was evident for open heart surgery or CT scanners.

Industry Organization. In the year CON, lifting CON had a temporary positive impact on the share of beds under for-profit ownership (p=.069), but this effect did not persist in

subsequent postlift years. We found no effects of lifting CON on the HMO market share (Table 6).

Results from the CON Specification with Measures of CON Stringency

In an alternative specification, we replaced the explanatory variables for CON with measures of CON stringency. Since the change in specification had little impact on the findings for the other explanatory variables, we only present results for the CON variables here, only discussing the noteworthy findings (Table 7).

Stringent programs had statistically significant negative effects on real hospital spending, implying a short-run effect of 1.1 percent (p=.052), with the coefficient on the lagged dependent variable implying an effect about five times this large. At the same time, however, stringent programs were associated with a 1.2 percent increase in beds per 1,000 (p=.071). Such programs reduced hospital profits by 1.0 percent on average in the short-run (p=.023) with long effects of -1.4 percent. Stringent CON programs also reduced real Medicare spending per beneficiary by 1.8 percent on average (p=.025), with the long-run effect being almost three times as large.

Stringent programs reduced availability of MRI units in hospitals by 19.1 percent on average (short and long-term effects about the same; p=.041), but had no other significant effects on the supply of hospital-based technologies. Moderate CON programs reduced supply of open heart units by 9.3 percent (again short and long-run effects about the same; p=.005), but also were associated with a 14.2 percent short-term (and long-term) increase in organ transplant units (p=.078).

Discussion and Conclusions

Overall, the historical record suggests that removing CON had no adverse effect on cost containment. The few statistically findings for stringent CON programs imply

that stringent programs may be successful in achieving its main acute care target, hospital cost containment. For reasons, not altogether clear, stringent programs appear to have resulted in Medicare savings. But, overall, we were unable to find that the few stringent programs that remained had an important influence on cost, suggesting that any savings on the hospital side or for selected populations may get dissipated in the former of higher use/costs elsewhere in the system. The results suggest that, as far as cost containment is concerned, ending CON should have no adverse consequences on spending.

Mending CON to make it more stringent may be desirable if policymakers are concerned about hospital spending, but the magnitude of potential saving is not great and such savings would not be reflected in spending on personal health care services in total. If anything, bed supply decreased in states after they lifted CON, but given the secular decrease in bed capacity, controlling bed supply is no longer a priority.[13] Controlling technology diffusion remains a priority, especially in locations other than hospitals. However, the evidence that CON has controlled technology diffusion has been very mixed,[14] and in this study, we found no evidence that lifting CON led to a technology arms race, at least in the hospital sector. That said, we have added to the current body of evidence suggesting that stringent CON may inhibit growth of certain technologies, including hospital-based cardiac cath labs, hospital-based CT scanners, hospital-based

[13] Salkever and Bice (1976, 1979) and Begley et al. (1982) found that CON reduced bed supply but subsequent studies did not (Eastaugh 1982, Ashby 1984, Levin-VHI 1995). Joskow (1980) found that CON increased hospitals' reserve margins, the mean number of statistical beds set up and staffed minus the average daily inpatient census for the year. This work has been updated by Graham and Cowing (1997); they also found that state CON had a negative and statistically significant effect on hospital reserve margins.

[14] Previous studies include Lewin-ICF and Alpha Center (1991); Russell (1979); Sloan et al. (1986), Russell (1979); Ford and Kaserman (1993). Conover and Sloan (1998) provide an extended discussion of previous findings: on balance, the weight of the evidence overall is that CON in general does not typically slow down diffusion. However, for stringent CON, the weight of the evidence favors the view that CON constrains technology growth.

MRI units, open heart surgery units, organ transplant units, and non-hospital-based renal dialysis units (Lewin-ICF and Alpha Center 1991; Ford and Kaserman 1993).

The increase in profitability after CON was lifted is perhaps noteworthy, but profits tend to be volatile and higher profit rates may not persist. Also, profits should be assessed relative to hospitals' cost of capital. They have little meaning in their own right. But the result suggests the era of hospitals retaining CON to provide de facto franchises to boost profitability may be over, if this ever was a motive for hospital support of CON.[15]

Given our findings, should state policymakers move to drop certificate of need? In light of unprecedented state fiscal woes, it may be quite difficult to justify continuing a program that appears from our results and a sizable body of previous work (Table 8) to provide so little value for the money. Indeed, a useful thought experiment is to imagine that all states had dropped CON and ask whether in light of sizable budget deficits one can imagine how one could justify seeking the funds to establish a new CON program in light of this evidence. However, we add these caveats.

First, in this study, we only assessed the consequences of removing CON in terms of health care spending and measures that underlie changes in spending. Removing CON may have adverse consequences for access to care[16] and for quality of care (Luft 1990;;Vaughan-Sarrazin et al. 2002). For both access and quality, to the extent that they exist, beneficial effects of CON are likely to be subtle, that is, apply to specific

[15] Feldstein (1988) and Wendling and Werner (1980) argued that hospitals lobbied for CON for this reason.

[16] Campbell and Fournier (1993) and Campbell and Aherne (1993) have analyzed the effect of hospital provision of uncompensated care on CON approval decisions in Florida and in California, respectively. A recent study by Santerre and Pepper (2000) found that CON agencies were more likely to approve applications from larger hospitals.

populations and types of care rather than to state populations and care in general. There also is the question of whether any gains in access or quality attainable through CON might be achieved more reliably and perhaps extensively through alternative means such as hospital pools that level the playing field across facilities and/or outcomes reporting systems of the sort already adopted by New York and Pennsylvania. Indeed, a pre-/post-study of CABG outcomes in Pennsylvania following the elimination of CON found that despite a 25 percent increase in heart surgery programs once CON was lifted, there was no detectable difference in the mortality experience of these new programs compared to those approved under CON (Robinson et al., 2001). It may be that the outcomes reporting system in effect during the post-CON period mitigated any potential adverse quality consequences that may otherwise have been observed.

Second, we have reported mean (average) effects of lifting CON. Since the mid-1980s, there has been a trend toward reducing the scope of CON in states that have retained it and before lifting CON, in states that removed it. The evidence is not sufficiently strong to imply that CON programs we classified as stringent are particularly effective, but there are characteristics of individual state CON programs that are difficult to observe on a national basis, particularly for a long time period. Removing an effective CON program may cause a surge in health care spending.

A case can be made that many of the states that have removed CON to date were those that added CON in the face of a federal requirement to do so. These reluctant followers may never have implemented programs that were as effective as the first implementers. Moreover, we have shown that these states tended to come disproportionately from those having lower-than-average health costs; our analysis does not show whether this is attributable to better health (or a more conservative care-seeking

style) among state residents or a more conservative practice style among health professionals. So there may also have been either less opportunity or less proclivity to take advantage of CON deregulation once it occurred.

Third, especially in larger states, the record for the entire state may be much too broad. There may be particular markets in particular states in CON has been effective in cost containment. If so, this cost containing effect remains to be demonstrated.

Finally, in recent years, there has been a backlash against managed care and some increased reliance on regulatory forms of healthcare consumer protection. The clamor for reregulation in CON has parallels in cable TV, airlines, banking and finance. "Just as regulation can have unanticipated consequences, so can deregulation. These unanticipated results may serve as justification for reregulation." (Phillips 1995: 88). Although the body of statistical evidence is not favorable to CON as a cost containment tool, if the market-oriented strategies are not to succeed, perhaps health planning and entry regulation deserve another look, but for other reasons than the statistical record.

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Table 1. Trends in CON for Acute Care Services, by State, 1964-2001

Region, Division, and State	Acute Care CON		
	Enacted	Effective*	End
North East			
New England			
Maine	1978	1978	-----
New Hampshire	1979	1983	-----
Vermont	1979	1979	-----
Massachusetts	1972	1972	-----
Rhode Island	1968	1968	-----
Connecticut	1969	1970	-----
Middle Atlantic			
New York	1966	1965	-----
New Jersey	1971	1972	-----
Pennsylvania	1979	1980	1996
Midwest			
East North Central			
Ohio	1975	1975	1998*
Indiana	1980	1980	1986
Illinois	1974	1975	-----
Michigan	1972	1973	-----
Wisconsin	1977	1977	1987/1995*
West North Central			
Minnesota	1971	1972	1984
Iowa	1977	1978	-----
Missouri	1979	1979	-----
North Dakota	1974	1972	1995
South Dakota	1972	1973	1988
Nebraska	1979	1979	1997*
Kansas	1972	1973	1985
South			
South Atlantic			
Delaware	1978	1979	-----
Maryland	1968	1971	-----
District of Columbia	1968	1971	-----
Virginia	1973	1973	-----
West Virginia	1977	1977	-----
North Carolina	1978	1979	-----
South Carolina	1971	1971	-----
Georgia	1974	1979	-----
Florida	1973	1973	-----

Region, Division, and State	Acute Care CON		
	Enacted	Effective*	End
East South Central			
Kentucky	1972	1973	-----
Tennessee	1973	1973	-----
Alabama	1977	1978	-----
Mississippi	1979	1979	-----
West South Central			
Arkansas	1975	1976	1989*
Louisiana(80-90)	-----	-----	-----*
Oklahoma	1971	1972	1987*
Texas(86-00)	1975	1976	1985
West			
Mountain			
Montana	1975	1974	-----
Idaho(84-00)	1980	1980	1983
Wyoming(90-00)	1977	1977	1989
Colorado(88-00)	1973	1974	1987
New Mexico(84-00)	1978	1978	1983
Arizona(88-00)	1971	1972	1985
Utah(85-00)	1979	1979	1984
Nevada	1971	1973	-----
Pacific			
Washington	1971	1971	-----
Oregon	1972	1971	-----
California(88-00)	1969	1970	1987
Alaska	1976	1977	-----
Hawaii	1974	1975	-----

* States that retained CON for long-term care services after dropping CON for acute care services. Note that Louisiana, although it had a section 1122 program, never had an acute care

Figure. 1 – Evolution of CON Stringency, 1980 - 2001

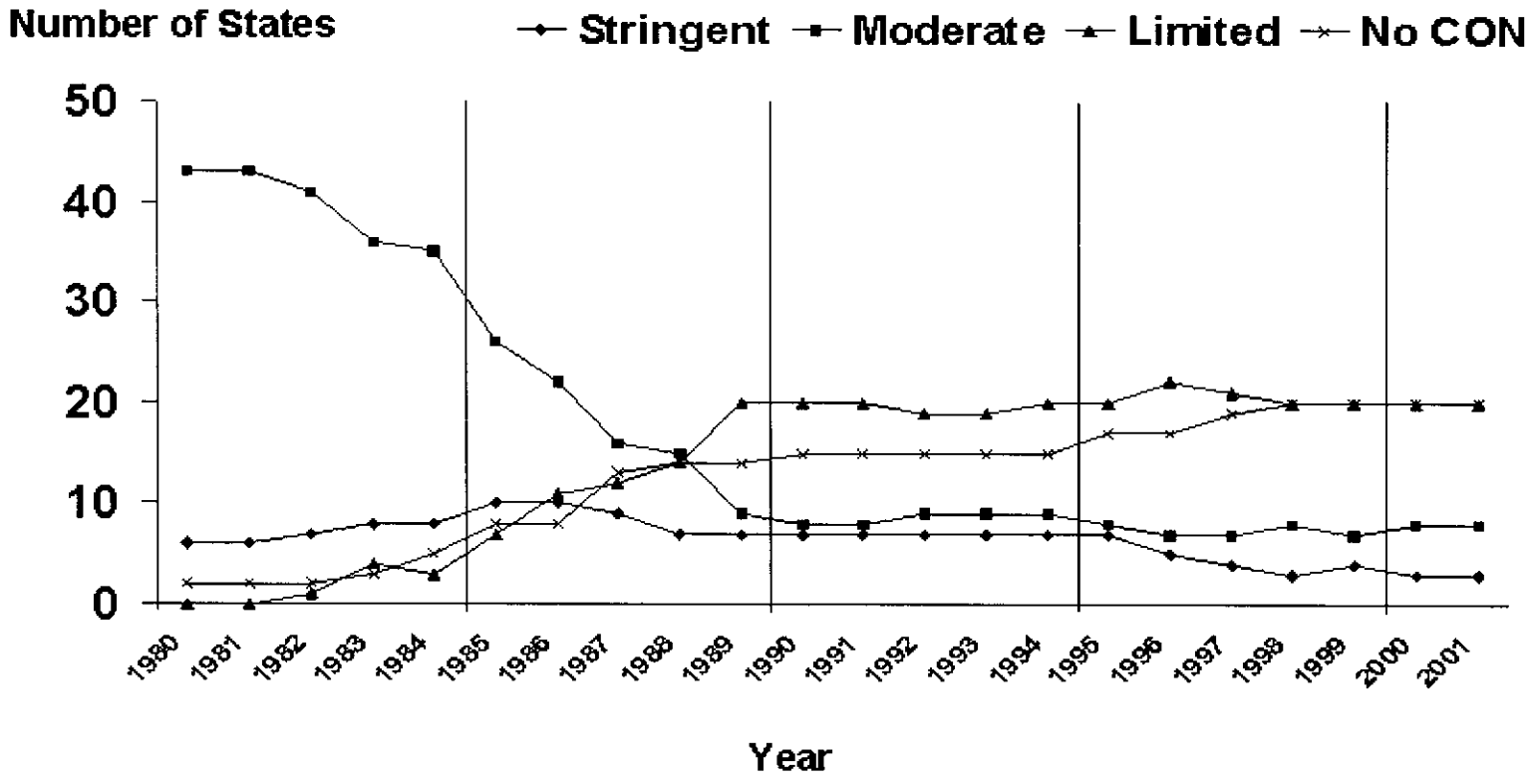

Table 2. Variable Definitions, Means and Standard Deviations

Dependent Variables	Years	Mean	S.D.
Medical Spending per Resident (real $)			
Total Spending per Capita	80-98	1,680	446.6
Acute Spending per Capita (excludes NH & HH)	80-98	1,496	373.6
Hospital Spending per Capita	80-98	706	159.4
Physician Spending per Capita	80-98	456	151.2
Spending per Medicare Eligible (real $)			
Total Medicare Spending per Eligible	80-98	2,253	642.8
Hospital Capacity/Utilization			
Community Hospital Beds per 1,000 Population	76-00	3.9	1.1
Short-Stay Admissions per 1,000 Population	76-00	130.2	25.5
Hospital Intensity (real $)			
Expense/Adjusted Patient Day	80-00	500	161.4
Expense/Adjusted Admission	80-00	3360	790.6
Market Structure			
Hospital Profits	76-00	1.060	0.03
For-profit share of Beds	85-00	0.10	0.11
HMO Market Share	76-00	0.12	0.12
Technology (units per million population)			
Hospital-based Trauma Units	86-00	4.4	3.3
Hospital-based Organ Transplant Units	80-00	1.6	1.4
Hospital-based MRI Units	87-00	6.8	4.1
Hospital-based CT Scanners	80-00	14.8	7.3
Hospital-based Cardiac Catheterization Labs	80-00	5.5	2.0
Hospital-based Open Heart Surgery Units	80-00	3.3	1.5

NOTE: statistics calculated using 1980 through most recent year available.

Independent Variables	Years	Mean	S.D.
Certificate of Need			
Section 1122	80-98	0.060	0.133
Pre-Lift 4 Years	80-00	0.107	0.149
Pre-Lift 3 Years	80-00	0.023	0.149
Pre-Lift 2 Years	80-00	0.023	0.149
Pre-Lift 1 Year	80-00	0.023	0.309
Year Acute CON Lifted	80-00	0.023	0.149
Post-Lift 1 Year	80-00	0.023	0.149
Post-Lift 2 Years	80-00	0.023	0.149
Post-Lift 3 Years	80-00	0.023	0.149
Post-Lift 4+ Years	80-00	0.169	0.375
CON Stringency*			
Limited	80-01	0.244	0.430
Moderate	80-01	0.343	0.475
Stringent	80-01	0.134	0.341
Hospital Rate-Setting			
Medicare PPS	76-98	0.205	0.124
Young Mandatory Prospective	80-00	0.003	0.038
Old Mandatory Prospective	80-00	0.071	0.225
Competition			
HMO Share	76-00	0.119	0.115

Note: statistics calculated using 1980 through most recent year available.

* These variables were substituted for the nine conlift, prelift and postlift variables in sepa

** Instrumental variable used.

CON Thresholds (real $)**			
Capital Threshold (000's)	80-01	4,532	6,029
Equipment Threshold (000's)	80-01	4,914	6,406

** These variables should be substituted for the nine conlift, prelift and postlift variables in

Table 3. Expenditures on Acute Care Services

	Medical Spending/Resident				
	Total Spending	Acute Spending	Hospital Spending	Physician Spending	Spending Per Medicare Eligible
Certificate of Need Regulation					
Section 1122	-0.005	-0.002	-0.002	0.001	-0.012
	(0.006)	(0.006)	(0.008)	(0.013)	(0.010)
CON Prelift Year 3	-0.002	-0.003	-0.007 [c]	0.003	-0.010
	(0.003)	(0.003)	(0.004)	(0.007)	(0.006)
CON Prelift Year 2	-0.007 [b]	-0.008 [a]	-0.010 [a]	-0.012 [c]	-0.009
	(0.003)	(0.003)	(0.004)	(0.007)	(0.007)
CON Prelift Year 1	-0.003	-0.004	-0.001	-0.011	-0.019 [a]
	(0.003)	(0.003)	(0.004)	(0.007)	(0.006)
CON Lifted	-0.004	-0.006	-0.006	-0.007	-0.013 [c]
	(0.003)	(0.004)	(0.004)	(0.009)	(0.007)
CON Postlift Year 1	-0.001	-0.002	0.003	-0.010	-0.006
	(0.004)	(0.004)	(0.005)	(0.007)	(0.006)
CON Postlift Year 2	-0.007 [c]	-0.009 [b]	-0.009	-0.016 [c]	-0.010
	(0.004)	(0.004)	(0.006)	(0.009)	(0.007)
CON Postlift Year 3	-0.003	-0.004	0.001	-0.016 [c]	-0.009
	(0.004)	(0.004)	(0.007)	(0.009)	(0.007)
CON Postlift Years 4+	0.001	0.000	-0.003	0.006	-0.007
	(0.003)	(0.003)	(0.004)	(0.007)	(0.006)
Hospital Rate-setting					
Prospective Payment System (PPS)	-0.103 [a]	-0.119 [a]	-0.335 [a]	-0.030	-0.326 [a]
	(0.035)	(0.036)	(0.050)	(0.072)	(0.077)
Young Mandatory Prospective	-0.002	-0.009	-0.026	-0.010	0.011
	(0.013)	(0.011)	(0.017)	(0.017)	(0.025)
Old Mandatory Prospective	0.010 [a]	0.012 [a]	0.013 [b]	0.008	0.002
	(0.003)	(0.004)	(0.006)	(0.007)	(0.007)
Hospital Reimbursement					
Medicaid % of Payments	-0.125 [b]	-0.125 [b]	-0.045	-0.347 [a]	-0.218 [c]
	(0.061)	(0.063)	(0.081)	(0.130)	(0.121)
Medicare % of Payments	-0.013	-0.046	-0.046	0.073	1.389 [a]
	(0.034)	(0.035)	(0.046)	(0.078)	(0.102)
Competition					
HMO Market Share (%)	-0.021 [c]	-0.021 [b]	-0.045 [a]	-0.006	-0.122 [a]
	(0.011)	(0.011)	(0.016)	(0.023)	(0.024)
Insurance Coverage					
Medicare % of Population	0.624 [a]	0.620 [a]	0.743 [a]	0.430	-1.82 [a]
	(0.174)	(0.183)	(0.270)	(0.388)	(0.420)
Medicaid % of Population	0.037	-0.002	-0.047	0.048	0.013
	(0.031)	(0.030)	(0.045)	(0.066)	(0.066)
Uninsured % of Population	0.393 [c]	0.357	0.129	1.130 [b]	0.918 [b]
	(0.216)	(0.222)	(0.286)	(0.486)	(0.446)
Area Characteristics					
Income Per Capita (ln)	0.160 [a]	0.150 [a]	0.119 [a]	0.293 [a]	0.233 [a]
	(0.024)	(0.024)	(0.032)	(0.057)	(0.049)
General Practitioner % of MDs	-0.155 [b]	-0.140 [c]	-0.246 [b]	-0.184	-0.099
	(0.069)	(0.072)	(0.111)	(0.162)	(0.140)
Physicians/100,000 (ln)	0.035	0.062 [b]	0.140 [a]	0.053	0.173 [a]
	(0.024)	(0.024)	(0.037)	(0.047)	(0.050)
Density (ln)	-0.050 [a]	-0.047 [a]	-0.056 [a]	-0.074 [a]	-0.067 [b]
	(0.013)	(0.014)	(0.021)	(0.027)	(0.029)
Service Wage (ln)	0.004	0.008	-0.040	0.073 [c]	-0.001
	(0.017)	(0.018)	(0.027)	(0.039)	(0.049)
Other					
Lagged Dependent	0.853 [a]	0.838 [a]	0.805 [a]	0.770 [a]	0.610 [a]
	(0.017)	(0.018)	(0.019)	(0.025)	(0.025)
Time					
R^2	0.9979	0.9974	0.9938	0.9937	0.9923
F	5631	4482	2214	2173	1457
N	864	864	864	864	864

a: Significant at the 1 percent level (two tail test)
b: Significant at the 5 percent level (two tail test)
c: Significant at the 10 percent level (two tail test)

Table 4. Hospital Beds, "Intensity," and Profitability

	Beds Per 1,000 Population	Short Stay Admissions Per 1,000 Population	Expenses Per Adjusted Patient -Day	Expenses Per Adjusted Admission	Hospital Profits
Certificate of Need Regulation					
Section 1122	-0.008	-0.004	-0.008	-0.005	-0.004
	(0.010)	(0.008)	(0.016)	(0.013)	(0.007)
CON Prelift Year 3	0.004	-0.004	-0.028	0.000	-0.005
	(0.006)	(0.005)	(0.020)	(0.009)	(0.005)
CON Prelift Year 2	-0.009[c]	-0.010[c]	-.023[b]	-0.013	0.002
	(0.005)	(0.006)	(0.011)	(0.009)	(0.004)
CON Prelift Year 1	-0.001	-.013[b]	-0.013	0.004	0.001
	(0.006)	(0.005)	(0.011)	(0.007)	(0.004)
CON Lifted	-0.017[b]	-0.010[c]	-0.013	-0.004	0.001
	(0.007)	(0.005)	(0.011)	(0.007)	(0.003)
CON Postlift Year 1	-0.002	-0.008	-0.017[c]	0.001	0.0004
	(0.005)	(0.006)	(0.010)	(0.007)	(0.004)
CON Postlift Year 2	-0.005	-0.003	-0.020	-0.008	-0.0002
	(0.007)	(0.007)	(0.012)	(0.008)	(0.004)
CON Postlift Year 3	0.001	-0.009	-0.014	0.001	-0.002
	(0.007)	(0.007)	(0.014)	(0.008)	(0.005)
CON Postlift Years 4+	-0.011[b]	-0.007	-0.009	-0.005	0.008[b]
	(0.005)	(0.005)	(0.011)	(0.008)	(0.004)
Other					
Lagged Dependent	.813[a]	.825[a]	.690[a]	.701[a]	.295[a]
	(0.027)	(0.028)	(0.050)	(0.031)	(0.088)
Time					
R^2	0.9919	0.9879	0.9857	0.9846	0.7000
F	1678	1206	1191	858	34
N	912	912	864	864	912

a. Significant at the 1 percent level (two tail test)
b. Significant at the 5 percent level (two tail test)
c. Significant at the 10 percent level (two tail test)

Table 5. Diffusion of Technology

	Trauma Units/ Million	Organ Transplant Units/ Million	Cardiac Cath Labs/ Million	Open Heart Units/ Million	CT Scanners/ Million	MRI Units/ Million
Certificate of Need Regulation						
Section 1122	NA	-0.093	-0.048	-0.155[b]	-0.117[c]	NA
		(0.177)	(0.062)	(0.068)	(0.060)	
CON Prelift Year 3	-0.315[b]	-0.015	-0.023	-0.009	0.001	-0.216[b]
	(0.131)	(0.121)	(0.029)	(0.043)	(0.324)	0.097
CON Prelift Year 2	-0.131	0.108	-0.071	-0.062	-0.010	-0.096
	(0.125)	(0.111)	(0.050)	(0.047)	(0.037)	0.092
CON Prelift Year 1	0.041	-0.025	-0.024	-0.002	0.033	-0.203[b]
	(0.147)	(0.101)	(0.030)	(0.040)	(0.034)	0.087
CON Lifted	-0.007	-0.017	-0.055	0.043	0.041	-0.245[b]
	(0.111)	(0.096)	(0.034)	(0.045)	(0.034)	0.112
CON Postlift Year 1	0.037	-0.103	-0.063[b]	0.057	0.023	-0.190[b]
	(0.127)	(0.131)	(0.029)	(0.042)	(0.032)	0.093
CON Postlift Year 2	0.052	-0.103	-0.057[c]	0.046	0.005	-0.177
	(0.157)	(0.148)	(0.034)	(0.042)	(0.032)	0.113
CON Postlift Year 3	0.009	0.034	-0.111[c]	0.017	0.004	-0.160
	(0.138)	(0.160)	(0.057)	(0.064)	(0.038)	0.107
CON Postlift Years 4+	0.058	-0.015	-0.043	0.053	0.015	-0.125
	(0.139)	(0.119)	(0.037)	(0.040)	(0.032)	0.108
Other						
Lagged Dependent	0.039[a]	0.010[b]	0.687[a]	0.019	0.577[a]	0.009
	(0.012)	(0.005)	(0.044)	(0.020)	(0.054)	(0.010)
Time						
R^2	0.7641	0.632	0.884	0.891	0.939	0.879
F	41	24	133	104	205	67
N	562	796	864	859	864	527

a: Significant at the 1 percent level (two tail test)
b: Significant at the 5 percent level (two tail test)
c: Significant at the 10 percent level (two tail test)

Table 6. Industry Organization

	For-profit share of beds	HMO Market Share
Certificate of Need Regulation		
Section 1122	-0.001	0.001
	(0.008)	(0.007)
CON Prelift Year 3	0.004[c]	0.001
	(0.002)	(0.003)
CON Prelift Year 2	0.000	-0.003
	(0.003)	(0.003)
CON Prelift Year 1	-0.001	-0.004
	(0.003)	(0.003)
CON Lifted	0.006[c]	0.005
	(0.003)	(0.005)
CON Postlift Year 1	0.001	0.003
	(0.003)	(0.004)
CON Postlift Year 2	0.003	-0.005
	(0.003)	(0.005)
CON Postlift Year 3	0.006	-0.004
	(0.005)	(0.006)
CON Postlift Years 4+	0.006	-0.004
	(0.004)	(0.004)
Other		
Lagged Dependent	0.779[a]	0.937[a]
	(0.048)	(0.038)
Time		
R^2	0.9879	0.9684
F	1395	604
N	624	912

a: Significant at the 1 percent level (two tail test)
b: Significant at the 5 percent level (two tail test)
c: Significant at the 10 percent level (two tail test)

Table 7. Multivariate Analysis of Impact of Certificate of Need Stringency on Hospital Costs

DEPENDENT VARIABLE	Certificate of Need Regulation: Section 1122	CON Stringency: Limited	CON Stringency: Moderate	CON Stringency: Stringent	Lagged Dependent Variable
Medical Spending					
Total Spending per Resident	-0.007	-0.002	0.000	-0.004	0.861[a]
	(0.006)	(0.002)	(0.002)	(0.004)	(0.017)
Acute Spending per Resident [A]	-0.005	-0.001	0.001	-0.006	0.845[a]
	(0.006)	(0.002)	(0.003)	(0.004)	(0.018)
Hospital Spending per Resident	-0.006	-0.003	-0.002	-0.011[c]	0.805[a]
	(0.008)	(0.003)	(0.003)	(0.005)	(0.019)
Physician Spending per Resident	-0.001	0.003	0.007	0.008	0.778[a]
	(0.013)	(0.005)	(0.006)	(0.009)	(0.026)
Medicare Spending per Eligible	-0.022[b]	0.001	-0.001	-0.018[b]	0.617[a]
	(0.011)	(0.004)	(0.005)	(0.008)	(0.025)
Hospital Supply/Utilization					
Beds per 1,000 Population	-0.005	0.003	0.006	0.01153[c]	0.814[a]
	(0.010)	(0.004)	(0.004)	(0.006)	(0.027)
Admissions per 1,000	-0.006	-0.003	-0.002	0.000	0.832[a]
	(0.009)	(0.003)	(0.004)	(0.005)	(0.027)
Hospital-Based Technology					
Certified Trauma Units	NA	-0.128	-0.165	-0.120	0.037[a]
		(0.087)	(0.1142)	(0.162)	(0.012)
Organ Transplant Units	-0.173	0.107	0.133[c]	-0.197	0.008[c]
	(.182)	(0.071)	(0.075)	(.137)	(0.005)
Cardiac Cath Labs	-0.092	0.037	-0.017	0.037	0.681[a]
	(0.062)	(0.027)	(0.031)	(0.045)	(0.043)
MRI	NA	0.049	-0.059	-0.212[b]	0.008
		(0.057)	(0.074)	(0.103)	(0.009)
CT Scanners	-0.117[c]	-0.008	-0.025	0.003	0.576[c]
	(0.061)	(0.023)	(0.027)	(0.037)	(0.018)
Open Heart Units	-0.166[b]	-0.045	-0.098[a]	-0.005	0.019
	(0.072)	(0.029)	0.035	(0.044)	(0.020)
Hospital Intensity					
Expense per Adjusted Patient Day	-0.018	0.003	0.001	-0.002	0.633[a]
	(0.015)	(0.006)	(0.006)	(0.011)	(0.052)
Expense per Adjusted Admission	-0.007	0.006	0.004	0.008	0.700[a]
	(0.013)	(0.005)	(0.005)	(0.009)	(0.031)
Market Structure					
Hospital Profits	-0.007	-0.003	-0.002	-0.010[b]	0.296[a]
	(0.007)	(0.002)	(0.003)	(0.004)	(0.089)
For-profit share of Beds	0.001	-0.001	-0.002	0.002	0.778[a]
	(0.008)	(0.003)	(0.003)	(0.005)	(0.048)
HMO Market Share	-0.001	0.000	0.000	-0.004	0.934[a]
	(0.007)	(0.003)	(0.003)	(0.010)	(0.040)

Note: Categorization of CON stringency is based on Lewin-ICF estimates (1991, 1995).

[a] Relationship shown is significant at .01 level. There is less than a 1% chance that this would be observed by chance.

[b] Relationship shown is significant at .05 level. There is less than a 5% chance that this would be observed by chance.

[c] Relationship shown is significant at .10 level. There is less than a 10% chance that this would be observed by chance.

[A] Acute spending includes total spending minus nursing home and home health spending.

APPENDIX B

ACUTE CARE CON PROGRAM CHARACTERISTICS AND TRENDS, BY STATE

Table B-1. Trends in CON for Acute Care Services, by State, 1964-2001

	Section 1122		Acute Care CON			LTC CON
	Start	End	Enacted	Effective	End	Only
North East						
New England						
Maine	3/73	10/1/1987	1978	1978	—	
New Hampshire	1973	1979	1979	1983	—	
Vermont	1975	1979	1979	1979	—	
Massachusetts	—	—	1972	1972	—	
Rhode Island	—	—	1968	1968	—	
Connecticut	—	—	1969	1970	—	
Middle Atlantic						
New York	1974	1979	1964	1965	—	
New Jersey	2/74	10/1/1987	1971	1972	—	
Pennsylvania	1973	1979	1979	1980	12/18/1996	
Midwest						
East North Central						
Ohio	1974	1978	1975	1975	3/1/1998	1998-01
Indiana	7/73	1984	1980	1980	1986	
Illinois	1980	1982*	1974	1975	—	
Michigan	12/14/1973	10/1/1987	1972	1973	—	
Wisconsin	1973	1978	1977	1977 ıly 1987/July 1, 1995		1995-01
West North Central						
Minnesota	2/25/1974	10/1/1987	1971	1971	6/30/1984	
Iowa	3/73	10/1/1987	1977	1978	—	
Missouri	1973	1976	1979	1979	December 2001	
North Dakota	1974	1982*	1971	1972	1995	
South Dakota	—	—	1972	1973	1988	
Nebraska	2/73	10/1/1987	1979	1979	1997	1997-01
Kansas	1980	1982*	1972	1973	7/1/1985	
South						
South Atlantic						
Delaware	1973	10/1/1987	1978	1979	—	
Maryland	1974	1978	1968	1970	—	
District of Columbia	—	—	1964	1971	—	
Virginia	1973	1978	1973	1973	—	
West Virginia	1977	10/1/1987	1977	1977	—	
North Carolina	1973	1982*	1971/1978	1971/1979	—	
South Carolina	1974	1982	1971	1972	—	
Georgia	1974	10/1/1987	1974	1979	—	
Florida	1973	1978	1973	1973	—	
East South Central						
Kentucky	1974	10/1/1987	1972	1973	—	
Tennessee	—	—	1973	1973	—	
Alabama	1973	1982	1977	1978	—	
Mississippi	1973	1982*	1979	1979	—	
West South Central						
Arkansas	7/73	10/1/1987	1975	1976	March, 1989	1989-2001
Louisiana	5/16/1973	10/1/1987	—	—	—	1978-2001
Oklahoma	2/74	10/1/1987	1971	1972	1987	1988-2001
Texas	—	—	1975	1976	8/31/1985	

	Section 1122		Acute Care CON			LTC CON
	Start	End	Enacted	Effective	End	Only
West						
Mountain						
Montana	1974	1982*	1975	1974	—	
Idaho	1974 & 7/1/83	1980 & 10/1/87	1980	1980	6/30/1983	
Wyoming	1974	1979	1977	1977	1989	
Colorado	1974	1979	1973	1974	1987	
New Mexico	1973	10/1/1987	1978	1978	1983	
Arizona	—	—	1971	1972	3/15/85	
Utah	1974	1979	1979	1979	12/31/1984	
Nevada	1974	1982*	1971	1972	—	
Pacific						
Washington	1974	1982*	1971	1971	—	
Oregon	1974	1979	1971	1972	—	
California	—	—	1969	1971	1/1/1987	
Alaska	1974	1982*	1976	1977	—	
Hawaii	1973	1977	1974	1975	—	
Notes:	[A]	[B]	[C]	[D]	[E]	[F]

Notes

* End date uncertain. Program was still in place in 1980 [S4], but not by December 1983 [S9].

[A] Date shown is year agreement signed. All start dates showing year except IL, KS and WV are reported in [S2]. IL and KS not reported in place as of mid-1979 [S10], but in place by 1980 [S4]. WV start date reported in [S10]. All start dates showing month are reported in [S5]. Note that the following assumptions have been made in cases where information across sources is inconsistent:
Idaho start date listed as 1974 in [S2] and [S10] and existence of Section 1122 agreement in 1980 is confirmed in [S4], but not as of mid-1991 [S7]. A Section 1122 agreement became effective upon removal of CON on July 1, 1983 in [S5] (confirmed as starting in 1983 in [S3]). Therefore, it is assumed that the first Section 1122 program ended in 1980 (when CON began) and resumed upon CON sunset.
Iowa start date listed as 1973 in [S2] and [S3], but March 1983 in [S5]. It is assumed that the correct year is 1973.
West Virginia not listed as having Section 1122 in [S2] or [S6], but start date shown as 1974 in [S3] and [S5]. Since both [S4] (which lists state as having agreement in 1980) and [S7] (which lists WV as having agreement in mid-1981) concur, the latter is assumed to be correct.

[B] Termination dates for 8 states prior to 1980 [FL, HI, MD,MO,OH, OR, VA, WI] are reported in [S10]. The 1979 termination date reported for 7 states [CO, NH, NY, PA, UT, VT, WY] is inferred from these states having Section 1129 as of mid-1979 [S10] but not in 1980 [S4]. Termination data for AL inferred, as Sec. 1129 reported in place as of 1980 [S4]. HHS terminated Section 1122 agreements as of October 1, 1987: at the time 16 states still had agreements in effect [S8], so all 15 states with Section 1122 agreement in place in 1986 [S9] were given this termination date.

[C] Data shown is year first CON statute was enacted as reported in Table 1 of [S3]. All figures match [S12] except that the latter shows the following years in which CON began: DC (1968); ND (1974); NY (1966); and OR (1972). Two dates are provided for North Carolina since its first CON statute was declared unconstitutional and repealed in 1973 [S15].

[D] Date shown is year CON became effective; the program is considered effective if it was in effect six months or more during the year. All effective dates through 1972 are based on the year regulations were first adopted as reported in Table 1 of [S14]. Those for 1973-1976 are based on the first year in which CON was in effect for at least six months, as reported in Table I-1 of [S2]; effective dates after 1976 are reported in [S1]. There are slight discrepancies between [S14] and [S2] for the following states; cases in which the reported effective date is earlier than the reported year regulations were adopted are shown with asterisk: Minnesota (1972); Maryland (1971); South Carolina (1971*); Nevada (1973); Oregon (1971*); California (1970*). Two dates are provided for North Carolina since its first CON statute was declared unconstitutional and repealed in 1973 [S15].

[E] Dates of repeal reported in [S3] unless otherwise specified (since some repeal dates were projected, any discrepancies with later authoritative sources were resolved in favor of latter). For **Colorado**, **New Mexico**, and North Dakota, dates of CON repeal reported in [S1]. For Idaho, dates of CON repeal are reported in [S5]. For Arkansas, Indiana, Minnesota, Oklahoma, Wisconsin, and Wyoming (latter confirmed in [S1]), dates were obtained by directly contacting relevant state agencies; note that Wisconsin had no hospital CON between July 1987 and June 1993, resurrected the program for two years and then eliminated it again. For Nebraska, Pennsylvania, South Dakota dates reported in [S11]. Note that Oregon eliminated CON for all acute care in 1994 [S11] except that it continued to review new hospitals, hence it is not shown as dropping acute CON. For Ohio, end date reported in [S13].

[F] All start dates assumed to match acute CON end dates. Start date for Louisiana reported in [S10].

Sources

[S1] Intergovernmental Health Policy Project, *Fifty State Profiles: Health Care Reform* (1995).

[S2] Sloan and Steinwald, *Insurance, Regulation, and Hospital Costs* (1980).

[S3] Simpson, "Full Circle: The Return of Certificate of Need Regulation of Health Facilities to State Control" (1986)

[S4] Joskow, *Controlling Hospital Costs: The Role of Government Regulation* (1980)

[S5] Division of Analysis and Assistance, Office of Health Planning. *Status Report on State Certificate of Need Programs: 1983 and 1984 Update*. U.S. Department of Health and Human Services, Public Health Service, Bureau of Health Maintenance Organizations and Resources Development, February 1986.

[S6] Lewin and Associates. *Evaluation of the Efficiency and Effectiveness of the Section 1122 Review Process: Part I.* Prepared for Health Resources Administration, Washington, DC: September 1975.

[S7] Intergovernmental Health Policy Project. Unpublished tabulation of CON and Section 1122 as of June 29, 1981.

[S8] Health Care Financing Administration. "Termination of Capital Expenditure Review Agreements Under Section 1122 of the Social Security Act." *Federal Register* 53, No. 62 (March 31, 1988): 10431-10433.

[S9] Daniel Sherman. *The Effect of State Certificate-of-Need Laws on Hospital Costs* (1988).

[S10] Judith Feder and William Scanlon. "Regulating the Bed Supply in Nursing Homes" (1980).

[S11] American Health Planning Association. *National Directory of Health Planning, Policy and Regulatory Agencies* (sixth to thirteenth editions).

[S12] All start dates are based on "Relative Duration of CON Regulation by State" in American Health Planning Association, *National Directory of Health Planning, Policy and Regulatory Agencies* (twelfth edition).

[S13] Gretchen McBeath. *Status Report on Ohio After Deregulation from Certificate of Need. Columbus, OH:* Bricker & Eckler LLP. Updated September 2001.

[S14] William J. Curran. "A National Survey and Analysis of State Certificate-of-Need Laws for Health Facilities" (1974)

[S15] Clark C. Havighurst. "Regulation of Health Facilities and Services by 'Certificate of Need'" (1973)

Table B-2. Trends in Acute Care CON Stringency, by State, 1980-1994 [A]

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Notes
Alabama	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	
Alaska	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Arizona	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B]
Arkansas	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	[B]
California	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B]
Colorado	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B][F]
Connecticut	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Delaware	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	
District of Columbia	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	[E]
Florida	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Georgia	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Hawaii	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Idaho	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Illinois	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Indiana	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B][F]
Iowa	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	
Kansas	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[C]
Kentucky	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	
Louisiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Maine	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	
Maryland	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Massachusetts	2	2	3	3	3	3	3	3	2	1	1	1	2	2	2	2	2	2	2	2	2	2	
Michigan	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Minnesota	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[C]
Mississippi	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Missouri	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	
Montana	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Nebraska	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	[F]
Nevada	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
New Hampshire	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
New Jersey	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	
New Mexico	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[C][F]
New York	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	
North Carolina	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	
North Dakota	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	[F]
Ohio	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	
Oklahoma	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B][F]

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Notes
Oregon	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Pennsylvania	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	0	0	0	0	0	
Rhode Island	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	
South Carolina	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	
South Dakota	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[C][F]
Tennessee	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Texas	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B]
Utah	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[B]
Vermont	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	
Virginia	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Washington	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	[D]
West Virginia	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	
Wisconsin	2	2	2	3	3	3	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	[D]
Wyoming	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	[D][F]
Acute Care CON																							
No CON (0)	2	2	1	3	5	8	8	14	15	15	16	16	16	16	15	16	17	19	20	20	20	20	
Limited CON (1)	0	0	1	4	3	7	11	12	14	20	20	20	19	19	20	20	22	21	20	20	20	20	
Moderate CON (2)	43	43	42	36	35	26	22	16	15	9	8	8	9	9	9	8	7	7	8	7	8	8	
Stringent CON (3)	6	6	7	8	8	10	10	9	7	7	7	7	7	7	7	7	5	4	3	4	3	3	
LTC CON Only (N)	1	1	1	1	1	1	1	2	3	3	4	4	4	4	3	3	4	5	6	6	6	6	
Arkansas	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	
Louisiana	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Nebraska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
Ohio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	
Oklahoma	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Wisconsin	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	

Note: Gray shading denotes states in which acute care CON is not in effect.

[A] Stringency is coded as follows: (0) repealed; (1) limited; (2) moderate; and (3) stringent. Estimates through 1991 are reported in [S1]; for 1992 in [S2]. The methodology for deriving stringency scores was not described in sufficient detail to replicate exactly. Therefore, stringency scores were projected from 1993-2000 based on a manual comparison of CON general capital expenditure threshold index [reported in Table B-3] and the CON equipment expenditure threshold index [reported in Table B-4] in each state in a given year relative to the index in 1992. Stringency was adjusted up or down based on changes in the index.

[B] In cases where a '0' is shown in years prior to 1993, data from [S3], [S4], and [S5] overrode inaccurate figures reported in [S1] and [S2] showing that stringency = 1 for those years. Specifically, the following states were changed from a '1' to a '0': Arizona, Arkansas, California, Colorado, Indiana, Oklahoma, Texas, and Utah.

[C] In cases where a '0' is shown in years prior to 1993, data from [S3], [S4], and [S5] overrode inaccurate figures reported in [S1] and [S2]. Specifically, the following states were changed from a '2' to a '0' and '1' to a '0': Idaho (with 1988 the 'first year a 1' is changed); Kansas (with 1986 the first year a '1' is changed); and Minnesota, New Mexico, and South Dakota (with 1988 the first year a '1' is changed.

[D] In the case of Washington, Wisconsin, and Wyoming, [S3], [S4], and [S5] override [S2] for year 1992. [S2] indicated that CON was repealed when, in fact, it was not. In these three cases, a '1' is simply reported.

[E] For District of Columbia, stringency figures for 1993 and 1994 are reported as '1' because the capital threshold increased from $600 to $2000 from the 1992 figure.

[F] Stringency 1, 2, or 3 is used if CON was in effect for more than half the year. For states where only the year of CON repeal is known, it is assumed that CON was lifted for more than half the year, hence stringency=0.

Sources

[S1] Lewin/ICF and Alpha Center, *Evaluation of the Ohio Certificate of Need Program*, June 28, 1991.

[S2] Lewin-VHI, Inc., Manard BB, Kaplan SJ, Keiller A, Cameron R, *The Georgia Certificate of Need Program*, December 1995.

[S3] Intergovernmental Health Policy Project, *Fifty State Profiles: Health Care Reform*, 1995.

[S4] Sloan and Steinwald, *Insurance, Regulation, and Hospital Costs* (1977)

[S5] Simpson, "Full Circle: The Return of Certificate of Need Regulation of Health Facilities to State Control," *Indiana Law Review* (1986)

[S6] American Health Planning Association. *National Directory of Health Planning, Policy and Regulatory Agencies* (sixth to thirteenth editions).

Table B-3. CON General Capital Expenditure Thresholds Applicable to Hospitals, by State, 1980-2001 (000's of Dollars) [A]

	CON	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2001 Index [B]
Alabama	L	600	600	600	600	600	736	736	736	736	822	1,500	1,500	1,500	1,500	3,000	3,200	3,200	3,200	3,200	3,200	3,200	3,200	75.6%
Alaska	L	150	150	150	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	100.0%
Arizona		750	750	750	750	750	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Arkansas		600	600	600	600	600	736	736	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
California		600	600	600	1,000	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Colorado		750	750	750	750	2,000	2,000	2,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Connecticut	S	150	150	150	600	600	736	736	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	100.0%
Delaware	L	150	150	150	150	150	150	150	150	750	750	750	750	750	750	750	750	1,500	1,500	3,000	5,000	5,000	5,000	55.6%
District of Columbia	L	600	600	600	600	600	600	600	600	600	600	600	600	600	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	88.9%
Florida	L	600	600	600	695	695	736	736	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,167	1,197	1,260	NT	NT	NT	NT	NT	---
Georgia	M	600	600	600	695	695	736	736	736	736	839	867	887	928	933	963	996	1,035	1,035	1,085	1,112	1,156	1,201	97.8%
Hawaii	L	600	600	600	600	600	600	600	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	66.7%
Idaho		600	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Illinois	L	600	600	600	650	600	600	736	736	2,000	2,000	2,000	2,000	2,158	2,158	2,404	2,474	2,474	2,548	2,548	2,672	6,000	6,000	44.4%
Indiana [D]		600	600	600	600	600	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Iowa	L	600	600	600	600	600	600	600	600	600	600	600	600	800	800	800	800	800	1,500	1,500	1,500	1,500	1,500	94.4%
Kansas		600	600	600	600	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Kentucky	L	600	600	600	604	604	634	634	634	634	663	1,500	1,500	1,500	1,545	1,500	1,568	1,568	1,568	1,568	1,656	1,772	1,772	91.4%
Louisiana [E]		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Maine [F]	M	350	350	350	350	350	350	350	350	350	350	350	500	500	500	500	500	500	2,000	2,000	2,000	2,000	2,000	88.9%
Maryland	S	600	600	600	600	600	735	735	735	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,305	1,305	1,450	1,450	95.0%
Massachusetts	M	600	600	600	600	600	600	600	600	7,500	7,500	7,500	7,500	8,055	8,175	8,306	8,458	8,668	9,048	9,166	9,166	9,841	9,841	1.8%
Michigan	M	150	150	150	150	150	150	150	150	150	750	750	750	850	3,000	2,000	2,000	2,130	2,188	2,296	2,296	2,352	2,426	84.2%
Minnesota		600	600	600	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Mississippi	L	600	600	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	2,000	2,000	2,000	88.9%
Missouri [G]	L	600	600	600	600	600	736	736	736	736	600	600	600	600	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000	100.0%
Montana	L	150	150	150	750	750	750	750	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	94.4%
Nebraska [H]		500	500	500	500	600	542	542	542	542	1,200	1,217	1,217	1,233	1,288	1,349	1,416	1,416	NT	NT	NT	NT	NT	---
Nevada [N]	L	600	600	600	600	600	736	736	1,500	1,500	4,000	4,000	4,000	4,000	4,000	4,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	88.9%
New Hampshire	L	600	600	600	600	600	100	1,000	1,000	1,000	1,000	1,000	1,000	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,760	1,827	90.8%
New Jersey	S	150	150	150	150	150	600	600	600	600	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000	2,000	1,000	1,000	1,000	100.0%
New Mexico		691	691	691	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
New York	L	100	100	100	100	100	300	300	300	300	400	400	400	400	400	400	400	1,000	1,000	3,000	3,000	3,000	3,000	77.8%
North Carolina [M]	M	711	711	711	716	716	740	1,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	88.9%
North Dakota		691	691	691	691	695	750	750	750	750	750	750	750	750	750	750	NT	NT	NT	NT	NT	NT	NT	---
Ohio [I]		657	657	657	691	657	657	736	1,500	1,500	2,000	2,000	2,000	2,000	2,000	2,000	5,000	5,000	NT	NT	NT	NT	NT	---
Oklahoma		150	150	150	600	600	600	2,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Oregon [J]	L	150	360	368	375	384	336	342	598	604	611	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	#####	0.0%

	CON	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2001 Index [B]
Pennsylvania		600	600	600	695	714	736	736	736	736	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	NT	NT	NT	NT	NT	---
Rhode Island	M	150	150	150	150	150	150	150	150	150	600	600	600	800	800	800	800	2,000	2,000	2,000	2,000	2,000	2,000	88.9%
South Carolina	M	600	600	600	600	600	600	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	100.0%
South Dakota		631	631	631	631	631	670	670	670	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Tennessee	L	150	150	150	150	150	1,000	1,000	1,500	1,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	88.9%
Texas		600	600	600	600	600	600	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Utah		1,000	1,000	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Vermont [K]	L	150	150	150	150	150	150	300	300	300	300	300	300	300	300	300	300	1,500	1,500	1,500	1,500	1,500	1,500	94.4%
Virginia [L]	L	600	600	600	600	600	700	700	700	700	700	700	700	1,000	1,500	1,500	2,000	5,000	5,000	5,000	5,000	5,000	5,000	55.6%
Washington	L	692	692	692	1,000	1,000	1,031	1,071	1,071	1,071	1,137	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	1,202	97.8%
West Virginia	M	181	181	181	181	181	714	714	1,000	1,000	1,000	1,000	750	750	750	750	750	750	1,000	1,000	2,000	2,000	2,000	88.9%
Wisconsin		150	150	150	600	600	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	1,000	1,000	NT	NT	NT	NT	NT	NT	---
Wyoming		150	150	150	150	150	714	745	745	745	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
CON in 2001																								
Stringent	S	300	300	300	450	450	690	690	778	950	950	950	950	1,083	1,083	1,083	1,083	1,083	1,083	1,435	1,102	1,150	1,150	
Moderate	M	418	418	418	430	430	505	538	698	1,561	1,755	1,758	1,748	1,860	2,145	2,040	2,063	2,260	2,534	2,568	2,697	2,794	2,809	
Limited	L	445	455	455	551	549	625	686	983	1,077	1,234	1,783	1,783	1,840	1,938	2,031	1,975	2,275	2,369	2,554	2,723	2,918	2,921	
Lifted CON																								
Before 10/1/86		680	680	692	692	710	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10/1/86-1989		433	433	433	619	797	960	1,164	708	745	NA	NA	NA	NA	NA	1,000	1,000	NA	NA	NA	NA	NA	NA	
1990 or later		612	612	612	644	667	671	691	882	882	1,488	1,492	1,492	1,496	1,510	1,525	2,805	2,805	NA	NA	NA	NA	NA	

Note: Gray shading denotes states in which acute care CON is not in effect.

[A] Capital threshold is defined as the dollar level at which each state automatically reviews proposed capital expansion of health facilities. In some states, a lower threshold is used for nursing homes. In such cases, we only report the threshold that is applicable to hospital capital projects. The notation 'NT' indicates that no threshold was in place for the given year. Figures for 1980-1988 compiled by Michael Grossman from Intergovernmental Health Policy Project and other sources (data provided courtesy of Bernard Friedman, AHCPR, with permission from Dr. Grossman). 1985 figures reported in [S1] have been substituted in rare cases of conflict with Grossman figures. Also, Grossman figures showed a threshold of

[B] 2001 Index constructed so that 0%=highest dollar threshold threshold in use by any state in 2001 (since the highest threshold equals the lowest stringency); Massachusetts was the state of the highest threshold in 2001. A $0 threshold means that all hospital capital projects are reviewed regardless of cost; therefore 100%=$0.

[C] Figures shown are unweighted averages for states in each stringency category as of 2001, as reported in Table B-2.

[D] In 1997 and 1998, Indiana reviewed "any LTC".

[E] In 1996, Lousiana had a $0 threshold for LTC/MR, in 1997, it listed LTC/MR, in 1998-2002, it listed n/a under Capital threshold.

[F] From 1997-2001, Maine used a threshold of $0.5M for nursing home and $2 million for hospital services.

[G] From 1997-2001, Missouri used $600,000 threshold for LTC.

[H] From 1997-2001, Nebraska used $0 threshold for LTC.

[I] In 1997, Ohio used a threshold of $2 m. for nursing home and $5 m. for hospital; in 1999, it used a threshold of $2 million for nursing home; in 2000 and 2001, it used a threshold of $

[J] Based on conversations with Jana Fussell, CON Coordinator, Oregon's threshold changed to $150,000 in 1980. In 1981 it was changed to $250,000 plus 5% of the difference in gross revenues over the previous 2 years. The thresholds shown are calculated by authors based on $250,000 plus 5% of the average change in gross revenues for the typical community hospital during this period (see Parameters). In 1985, the threshold became $250,000 plus 1/2 percent of gross hospital revenues; in 1987 it was set at $500,000 plus 1/2 percent of gross revenues (again, these calculations were performed by authors based on average revenues for a community hospital during this period). After 1990, the threshold was dropped, however from 1990-1998, Oregon reviewed any LTC services and all new hospitals. This has been coded as $10 million as it better reflects the threshold in use for a typical hospital. In 1999, it reported reviewing any LTC, but from 2000-2002, it reported reviewing any LTC/hospital. It is assumed that the state reviewed only new hospitals during this period.

[K] From 1998-2001, Vermont used a threshold of $750,000 for nursing home.

[L] In 1995, Virginia used a threshold of $1 million for nursing home.

[M] The $600,000 threshold became effective July 12, 1985, hence was in effect less than half a year and is shown as beginning in 1986; the $2,000,000 threshold began July 1, 1987 and hence by convention is presumed to apply for that entire year. These figures were confirmed by correspondence with Craig Smith, Assistant Chief of the CON Section, who checked the available statutes kept on file at the Certificate of Need program.

[N] Because the pattern of threshold changes appeared somewhat anomalous, we confirmed all figures with Gil Potter in the Nevada Health Department. While confirming their correctness, he also pointed out that CON review does not apply to Clark County (Las Vegas) or Washoe (Reno), which together account for 90% of the state's population.

Parameters

[P1]	23,684	Estimated gross revenues per Oregon community hospital in 1987 (thousands)
[P2]	1.066	Estimated annual change in gross revenues from 1985-1987 based on actual change in gross revenues for all Oregon non-profit community hospitals during this period. Figure shown = (1 + average annual growth rate).
[P3]	16,116	Estimated gross revenues per Oregon community hospital in 1981 calculated as [P1]/([P2]^6)

Sources

[S1] Simpson, "Full Circle: The Return of Certificate of Need Regulation of Health Facilities to State Control," *Indiana Law Review* (1986).

[S2] American Health Planning Association, *National Directory of Health Planning, Policy and Regulatory Agencies* (first through thirteenth editions).

Table B-4. CON Equipment Expenditure Thresholds, by State, 1980-2001 (000's of Dollars) [A]

	CON	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2001 Index [B]
Alabama	L	200	200	200	200	200	245	245	245	245	274	500	500	500	500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	92.5%
Alaska	L	150	150	150	150	150	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
Arizona		750	750	750	750	750	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Arkansas		400	400	400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
California		400	400	400	1,000	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Colorado		750	750	750	750	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Connecticut	S	150	150	150	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	98.0%
Delaware	L	150	150	150	150	150	150	150	150	750	750	750	750	750	750	750	750	1,500	1,500	3,000	5,000	5,000	5,000	75.0%
District of Columbia	L	400	400	400	400	400	400	400	400	400	400	400	400	400	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300	93.5%
Florida	L	400	400	400	400	400	400	400	400	400	500	1,000	1,000	1,000	1,000	1,167	1,197	1,260	NT	NT	NT	NT	NT	---
Georgia	M	400	400	400	406	406	429	429	429	429	470	486	497	516	518	535	553	575	575	603	618	642	667	96.7%
Hawaii	L	400	400	400	400	400	400	400	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
Idaho		400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Illinois	L	400	400	400	400	400	400	307	307	1,000	1,000	1,000	1,000	1,118	1,118	1,212	1,240	1,240	1,270	1,270	1,323	6,000	6,000	70.0%
Indiana		400	400	400	400	400	400	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Iowa	L	400	400	400	400	400	400	400	400	400	400	400	400	300	300	300	300	300	1,500	1,500	1,500	1,500	1,500	92.5%
Kansas		400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Kentucky	L	400	400	400	402	402	423	423	423	423	442	1,500	1,500	1,500	1,545	1,500	1,568	1,568	1,568	1,568	1,656	1,772	1,772	91.1%
Louisiana		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Maine	M	300	300	300	300	300	300	300	300	300	300	300	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
Maryland	S	400	400	400	400	400	5,000	5,000	5,000	5,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0%
Massachusetts [D]	M	400	400	400	400	400	400	400	400	400	1,500	1,500	1,500	429	436	443	451	467	483	489	489	525	525	97.4%
Michigan	M	150	150	150	150	150	150	150	150	150	750	750	750	0	0	0	0	0	0	0	0	0	0	100.0%
Minnesota		400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Mississippi	L	400	400	400	400	400	750	750	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,500	1,500	1,500	92.5%
Missouri [E]	L	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
Montana	L	150	150	150	500	500	500	500	750	750	750	750	750	750	750	750	750	750	NT	NT	NT	NT	NT	0.0%
Nebraska [F]		400	400	400	400	400	400	400	400	400	900	913	913	925	966	1,012	1,062	1,062	NT	NT	NT	NT	NT	---
Nevada	L	400	400	400	400	400	400	400	1,500	1,500	1,000	1,000	1,000	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	0.0%
New Hampshire	L	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	98.0%
New Jersey	S	150	150	150	150	150	400	400	400	400	400	400	400	1,000	1,000	1,000	1,000	1,000	1,000	2,000	1,000	1,000	1,000	95.0%
New Mexico		400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
New York	L	100	100	100	100	100	300	300	300	300	400	400	400	400	400	400	400	1,000	1,000	3,000	3,000	3,000	3,000	85.0%
North Carolina [G]	M	400	400	400	400	400	400	600	600	600	2,000	2,000	2,000	2,000	750	750	750	750	750	750	750	750	750	96.3%
North Dakota		400	400	400	400	400	500	500	500	500	500	500	500	500	500	500	NT	NT	NT	NT	NT	NT	NT	---
Ohio		400	400	400	400	400	400	400	750	750	1,000	1,000	1,000	1,000	1,000	1,000	2,000	2,000	NT	NT	NT	NT	NT	---
Oklahoma		150	150	150	400	400	400	3,000	3,000	3,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Oregon [H]	L	250	250	250	400	400	1,000	1,000	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	0.0%

	CON	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2001 Index [B]
Pennsylvania		400	400	400	400	400	400	400	400	400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Rhode Island	M	150	150	150	150	150	150	150	150	150	400	400	400	600	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
South Carolina	M	400	400	400	400	400	400	400	400	400	600	600	600	600	600	600	600	600	600	600	600	600	600	97.0%
South Dakota		400	400	400	400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Tennessee	L	150	150	150	150	150	1,000	1,000	1,500	1,500	2,000	2,000	2,000	2,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	95.0%
Texas		400	400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Utah		5,000	5,000	5,000	5,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
Vermont	L	125	125	125	125	125	125	250	250	250	250	250	250	250	250	250	250	500	500	500	500	500	500	97.5%
Virginia	L	400	400	400	400	400	400	400	400	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0%
Washington	L	400	400	400	400	1,000	1,031	1,071	1,071	1,071	1,071	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.0%
West Virginia	M	150	150	150	150	150	400	400	750	750	750	750	300	300	300	300	300	300	750	750	2,000	2,000	2,000	90.0%
Wisconsin		150	150	150	600	600	1,000	1,000	NT	NT	NT	NT	NT	NT	NT	600	600	NT	NT	NT	NT	NT	NT	---
Wyoming		150	150	150	150	150	400	400	400	400	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	---
CON in 2001 [C]																								
Stringent	S	233	233	233	317	317	1,933	1,933	1,933	1,933	400	400	400	700	700	700	700	700	700	1,200	700	700	700	
Moderate	M	294	294	294	295	295	329	354	397	397	846	848	881	681	526	529	532	587	645	649	807	815	818	
Limited	L	304	304	304	329	359	506	510	695	759	722	797	797	820	817	885	878	1,020	1,110	1,360	1,549	1,691	1,891	
Lifted CON																								
Before 10/1/86		1,019	1,019	1,107	1,225	488	400	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10/1/86-1989		343	343	343	529	564	657	1,029	1,267	1,700	NA	NA	NA	NA	NA	NA	600	NA	NA	NA	NA	NA	NA	
1990 or later		400	400	400	400	400	425	425	513	513	700	703	703	706	822	837	1,531	1,531	NA	NA	NA	NA	NA	

Note: Gray shading denotes states in which acute care CON is not in effect.

[A] 2001Index constructed so that 0%=highest threshold in use by any state in 2001;Illiois was the state of the highest threshold (6,000,000) in 2001. 100%=$0 (i.e., all projects reviewed regardless of cost).

[B] Equipment threshold is defined as the dollar level at which each state automatically reviews purchases of new health equipment. The notation 'NT' indicates that no threshold was in place for the given year. Figures for 1980-1988 compiled by Michael Grossman from Intergovernmental Health Policy Project and other sources (data provided courtesy of Bernard Friedman, AHCPR, with permission from Dr. Grossman). 1985 figures reported in [S1] have been substituted in rare cases of conflict with Grossman figures. Also, Grossman figures showed a threshold of $1 million in Indiana for the years 1986-1988 and $3 million in Oklahoma for 1987-1988, but these contradicted end-date figures obtained from state agencies [Table B-1], so NT was substituted for these years. Figures for 1989 and 1991-1994 reported in annual editions of [S2], with interpolation used for 1990 and telephone and telephone contacts with states to fill in figures whenever 1989 and 1991 thresholds differed.

[C] Figures shown are unweighted averages for states in each stringency category as of 2001, as reported in Table B-2.

[D] Figure for 1996 not reported, so figure shown is average of 1995 and 1997 figures.

[E] For years 1996-2001, Missouri used a threshold of 400,000 for LTC and $1,000,000 for all other equipment, including acute care.

[F] For years 1997-2001, Nebraska reviewed any long term care equipment but no acute care equipment.

[G] The $750,000 threshold officially became effective on March 18, 1993, although due to projects not yet reviewed in the pipeline, it really did not become operationally effective until September of that year. However, insofar as this same sort of delay may have also occurred in other states, we retain our convention of showing the new threshold in effective for more than half that year. These figures were confirmed by correspondence with Craig Smith, Assistant Chief of the CON Section, who checked the available statutes kept on file at the Certificate of Need program.

[H] All figures related to changes in thresholds for Oregon were obtained from Jana Fussell, Certificate of Need Coordinator.

[I] According to Janis Sigman, Manager of Certificate of Need Program, the statutory change from $400,000 to $1,000,000, while enacted in 1983, did not become effective until 1984.

Sources

[S1] Simpson, "Full Circle: The Return of Certificate of Need Regulation of Health Facilities to State Control," Indiana Law Review(1986).

[S2] American Health Planning Association, *National Directory of Health Planning, Policy and Regulatory Agencies* (first through thirteenth editions).

Table B-5. Review Thresholds for Certificate of Need, by State, January 2002 (000's of Dollars)

				Scope [A]				
	Capital	Equipment	Service	Acute	CT	MRI	OH	LTC
Alabama	3,200	1,500	Any	X		X	X	X
Alaska	1,000	1,000	1,000	X	X	X	X	X
Arizona	---------- All CON Regulation Ended 1985 ----------							
Arkansas	500 LTC	NT	hospice					X
California	---------- All CON Regulation Ended 1987 ----------							
Colorado	---------- All CON Regulation Ended 1986 ----------							
Connecticut	1,000	400	0	X	X	X	X	X
Delaware	5,000	5,000	N/A	X				X
District of Columbia	2,000	1,300	600	X	X	X	X	X
Florida	None***	None	Any	X			X	X
Georgia	1,201	667	Any	X	X	X	X	X
Hawaii	4,000	1,000	Any	X	X	X	X	X
Idaho	---------- All CON Regulation Ended 1983 ----------							
Illinois	6,000	6,000	Any	X			X	X
Indiana	---------- CON Regulation 1980-1996 and 1997-1999 --------							
Iowa	1,500	1,500	500				X	X
Kansas	---------- All CON Regulation Ended 1984 ----------							
Kentucky	1,772	1,774	N/A	X		X	X	X
Louisiana	NT	NT	Any LTC/MR					X
Maine	0.5Mnh/2M hosp	1,000	100	X	X	X	X	X
Maryland	1,450	N/A	Any	X			X	X
Massachusetts	9,841	525	All			X	X	X
Michigan	2,426	Any	Any Clinical	X	X	X	X	X
Minnesota	---------- All CON Regulation Ended 1983 ----------							
Mississippi	2,000	1,500	Any	X		X	X	X
Missouri	600/1M	400/1M	1,000	X		X	X	X
Montana	1,500	N/A	150					X
Nebraska	Any LTC	Any LTC	Any LTC					X
Nevada	2,000	N/A	N/A	X				X
New Hampshire	1,827	400	Any	X	X	X	X	X
New Jersey	1,000	1,000	Any	X			X	X
New Mexico	---------- All CON Regulation Ended 1982 ----------							
New York	3,000	3,000	Any	X	X	X	X	X
North Carolina	2,000	750	None-certain	X	X	X	X	X
North Dakota	---------- All CON Regulation Ended 1995 ----------							
Ohio	2,000 renovations	N/A	N/A					X
Oklahoma	500	N/A	Any with Beds					X
Oregon	Any LTC/New hospital	N/A	Any LTC/hospital					X
Pennsylvania	---------- All CON Regulation Ended 1996 ----------							
Rhode Island	2,000	1,000	750	X	X	X	X	X
South Carolina	1,000	600	400	X		X	X	X
South Dakota	---------- All CON Regulation Ended 1986 ----------							
Tennessee	2,000	1,000	Any with Beds	X	X	X	X	X
Texas	---------- All CON Regulation Ended 1984 ----------							
Utah	---------- All CON Regulation Ended 1983 ----------							
Vermont	1.5M hsp/0.75 M	500	300	X	X	X	X	X
Virginia	5,000	N/A	N/A	X	X	X	X	X
Washington	1,202	N/A	Any	X			X	X
West Virginia	2,000	2,000	List of 23 sves.	X		X	X	X
Wisconsin	1,000	600	Any LTC					X
Wyoming	---------- All CON Regulation Ended 1986 ----------							

Note: "Any" means that the first-time establishment of the listed services requires a CON regardless of cost; "NA" means that this category of review is not considered for a new service.

[A] Acute=Acute Care; CT=Computerized tomography scanners; MRI: Magnetic Resonance Imaging units; OH: Open heart surgery facilities; LTC: Long Term Care

Source:

[S1] American Health Planning Association. 2002 Relative Scope and Review Thresholds of CON Regulated Services. Compiled by Thomas R. Piper in *National Directory of Health. Planning, Policy and Regulatory Agencies* (January, 2002).

Table B-6. Scope of Services Regulated by Certificate of Need, by State, January 1, 2002

	Acute Care	Air Ambulance	Amb Surg Ctrs	Burn Care	Business Cmptrs	Cardiac Cath.	CT Scanners	Gamma Knives	Home Hlth	ICF/MR	Lithotripsy	Long Term Care	Med Off Bldg	Mobile Hi Tech	MRI Scnrs	Neo-ntl Int Care	Obstetric Svcs	Open Heart Svcs	Orgn Trnsplnts	PET Scnrs	Psychiatric Svcs	Rad Therapy	Rehab	Renal Dialysis	Res Care Fac	Subacute	Substance Abuse	Swing Beds	Ultra-sound	Rank
Alabama	X		X			X		X	X		X	X			X	X	X	X	X	X	X	X	X	X			X	X		16.0
Alaska	X	X	X	X		X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27.0
Arizona																														
Arkansas									X	X		X													X	X		X		8.4
California																														
Colorado																														
Connecticut	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	28.6
Delaware	X		X			X					X	X								X		X								4.8
District of Columbia	X		X			X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		16.1
Florida	X			X						X		X				X		X	X		X						X			7.7
Georgia	X		X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		27.5
Hawaii	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X		15.0
Idaho																														
Illinois	X		X	X		X		X		X		X				X	X	X	X	X	X	X	X	X		X		X		13.3
Indiana																														
Iowa			X			X				X		X						X	X	X		X								8.1
Kansas																														
Kentucky	X		X			X			X	X	X	X		X	X	X		X	X		X	X	X		X	X				14.4
Louisiana										X		X																		0.4
Maine	X	X	X	X		X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X			X	X	X	31.2
Maryland	X		X	X		X			X	X		X				X	X	X	X		X	X	X			X	X			15.3
Massachusetts		X	X					X			X	X			X	X		X	X	X	X	X	X		X		X			4.8
Michigan	X	X	X			X	X	X			X	X		X	X			X	X	X	X	X						X		14.4
Minnesota																														
Mississippi	X		X			X		X	X	X	X	X			X			X		X	X	X	X	X	X	X	X			18.0
Missouri	X		X			X		X		X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X			21.0
Montana			X						X	X		X											X				X	X		6.3
Nebraska												X											X							3.0
Nevada	X		X							X		X											X			X	X			3.5
New Hampshire	X		X			X	X				X	X		X	X			X		X	X	X	X				X			12.6
New Jersey	X			X		X			X	X		X				X		X	X		X		X		X					13.2
New Mexico																														
New York	X		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	15.0
North Carolina	X	X	X	X		X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X		X	X		20.0
North Dakota																														
Ohio												X																		0.5
Oklahoma										X		X									X					X	X			8.4
Oregon												X																X		2.4
Pennsylvania																														
Rhode Island	X		X			X	X	X				X		X	X	X	X	X	X	X	X	X	X			X	X	X		15.2
South Carolina	X		X			X		X	X	X	X	X		X	X	X	X	X		X	X	X	X			X	X			20.9
South Dakota																														
Tennessee	X	X	X			X	X		X	X	X	X			X	X		X		X	X	X	X			X	X	X		16.0
Texas																														
Utah																														
Vermont	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X			X	X		22.5
Virginia	X		X			X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X				X			8.0
Washington	X		X	X		X			X			X				X	X	X	X				X	X		X		X		13.5
West Virginia	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		23.4
Wisconsin										X		X														X				4.4
Wyoming																														

Source

[S1] American Health Planning Association. 2002 Relative Scope and Review Thresholds of CON Regulated Services. Compiled by Thomas R. Piper in *National Directory of Health. Planning, Policy and Regulatory Agencies* (January, 2002).

Table B-7. Mandatory Hospital Rate-Setting Programs

	Payers Covered Under Mandatory Hospital Rate-Setting				
	All Payers	All Payers Except Medicare	All Payers Except Medicare and Medicaid	Blue Cross & Medicaid	Medicaid Only
	Years Mandatory Hospital Rate-Setting in Place				
Alabama					
Alaska					
Arizona					
Arkansas					
California					
Colorado				1974-76	
Connecticut [A]		1986-1994	1974-85		
Delaware					
District of Columbia					
Florida					
Georgia					
Hawaii					
Idaho					
Illinois					
Indiana					
Iowa					
Kansas					
Kentucky					
Louisiana					
Maine					
Maryland	1978-ongoing		1975-77		
Massachusetts	1980-85	1976-79, 1986-88			1971-75
Michigan					
Minnesota [B]					
Mississippi					
Missouri					
Montana					
Nebraska					
Nevada					
New Hampshire					
New Jersey	1982-89	1990-92		1975-81	
New Mexico					
New York	1983-85	1978-82, 1986-1996		1970-77	
North Carolina					
North Dakota					
Ohio					
Oklahoma					
Oregon					
Pennsylvania					
Rhode Island					1975-ongoing
South Carolina					
South Dakota					
Tennessee					
Texas					
Utah					
Vermont					
Virginia					
Washington	1974-84	1985-88			
West Virginia					
Wisconsin		1985-87			1973-84, 1988-ongoing
Wyoming					

Note: Years in which rate-setting was in place are reported in [S1]. This information was updated based on [S2] and contacts to selected states. Dates in which rate-setting ended in Connecticut, Maine, Minnesota, and New York reported in [S2].

[A] Connecticut retained state approval of hospital budgets, but deregulated its authority to control charges in 1994 [S2].

[B] Minnesota enacted rate setting for non-managed care plans as part of its 1992 MinnesotaCare reform legislation, the controls were never implemented and were repealed in 1995 [S2].

Sources

[S1] Bernard Friedman and Rosanna M. Coffey. "Effectiveness of State Regulation of Hospital Revenue in the 1980s" in Robert B. Helms, editor, Health Policy Reform: Competition and Controls. Washington, D.C.: The AEI Press 1993: 36-58.

[S2] McDonough, John E. Tracking the Demise of State Hospital Rate Setting. Health Tracking. *Health Affairs*. January/February 1997: 142-149.

Table B-8. "Young" Mandatory Hospital Rate-setting, by State, 1970-2000 [A]

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Alabama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alaska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arizona	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
California	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	0	268	257	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Connecticut	0	0	0	0	656	633	0	0	0	0	0	0	0	0	0	0	110	111	0	0	0	0	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
District of Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Florida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iowa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kentucky	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Louisiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maryland	0	0	0	0	0	645	633	0	612	606	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Massachusetts	0	116	112	0	0	0	583	604	0	0	162	162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Michigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minnesota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mississippi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missouri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Jersey	0	0	0	0	0	382	360	0	0	0	0	0	671	692	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New York	544	551	0	0	0	0	0	0	167	170	0	0	0	146	157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pennsylvania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhode Island	0	0	0	0	0	162	164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Texas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Washington	0	0	0	0	1000	1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
West Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wisconsin	0	0	0	70	73	0	0	0	0	0	0	0	0	0	0	479	415	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Figures shown equal percent of hospital revenue subject to mandatory rate-setting in states where the program is still young multiplied by 1000 (e.g., 10.0% = 100).

[A] "Young" mandatory rate-setting programs include all mandatory prospective rate-setting programs that are three years of age or less. The construction of the rate-setting variables (1970-1985) was based on summing the payments to hospitals of all payers included under mandatory rate-setting in a particular state, including as needed Blue Cross, Medicare and Medicaid, and dividing this sum by gross hospital revenue reported in [S1]. This information was obtained from a SAS dataset originally developed by Frank Sloan for a 1983 paper [S3]. The construction of rate-setting variables for 1986-1993 is calculated by dividing Medicaid payments to hospitals and Medicare payments to hospitals (both reported in [S2]) by hospital gross revenue reported in [S1]. Note that because all states with mandatory rate-setting either used an all-payer system (i.e., 100%) or system related to Medicaid only, no information on Blue-Cross payments to hospitals was needed after 1986..

Sources

[S1] AHA Hospital Statistics, 1970-2001 annual compilations.

[S2] Centers for Medicare and Medicaid Services. *1960-1998 State Health Care Expenditures Tables.* http://cms.hhs.gov/statistics/nhe/state-estimates-provider/ (accessed July 13, 2002).

[S3] Frank Sloan. "Rate Regulation as a Strategy for Hospital Cost Control: Evidence From the Last Decade." *Milbank Memorial Fund Quarterly: Health Society* 61, No. 2 (1983): 195-221.

Table B-9. "Old" Mandatory Hospital Rate-setting, by State, 1970-2000 [A]

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Notes
Alabama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Alaska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Arizona	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
California	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Colorado	0	0	0	0	0	0	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Connecticut [B]	0	0	0	0	0	0	629	624	628	632	616	610	577	566	556	527	504	514	672	670	681	671	665	658	697	0	0	0	0	0	0	[B]
Delaware	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
District of Columbia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Florida	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hawaii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Illinois	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Indiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Iowa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kentucky	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Louisiana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Maine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Maryland	0	0	0	0	0	0	0	619	388	394	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Massachusetts	0	0	0	119	126	133	129	126	719	708	695	689	1000	1000	1000	1000	592	619	635	0	0	0	0	0	0	0	0	0	0	0	0	
Michigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minnesota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mississippi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Missouri	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Montana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nebraska	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nevada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New Hampshire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New Jersey	0	0	0	0	0	0	0	338	343	347	352	359	329	308	1000	1000	1000	1000	1000	1000	617	661	651	0	0	0	0	0	0	0	0	
New Mexico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
New York	0	0	558	554	550	546	483	420	434	448	695	689	561	575	581	1000	668	654	646	645	643	655	684	681	714	694	687	0	0	0	0	[C]
North Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
North Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ohio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oklahoma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Oregon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Notes
Pennsylvania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rhode Island	0	0	0	0	0	0	0	166	163	159	139	144	132	124	122	118	117	128	131	127	167	168	212	168	191	176	171	196	189	189	189	[D]
South Carolina	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
South Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tennessee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Texas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Vermont	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Washington	0	0	0	0	0	0	1000	1000	1000	1000	1000	1000	1000	1000	1000	608	590	615	617	0	0	0	0	0	0	0	0	0	0	0	0	
West Virginia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Wisconsin	0	0	0	0	0	76	71	73	75	76	106	107	95	96	94	96	91	685	88	88	87	101	96	98	101	97	93	87	80	80	80	[E]
Wyoming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Note: Figures shown equal percent of hospital revenue subject to mandatory rate-setting in states where the program has been operational for more than 3 years multiplied by 1000 (e.g., 10.0% = 100).

[A] Old mandatory rate-setting programs include all mandatory prospective rate-setting programs that are more than three years of age. The construction of the rate-setting variables is obtained in the same fashion as reported in Table B-8.

[B] 1994=all but Medicare

[C] 1994-1996=all but Medicare

[D] 1975-1998=Medicaid share. Assumes 1999 and 2000=1998

[E] 1980-1987; 1989-1998=Medicaid share. 1987=all except Medicare; Assumes 1999 and 2000=1998